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THE MONIST

CARLO MICHELSTAEDTER.

I.

THE world is going through one of its periodical crises of unrest and readjustment: philosophers and men of religion are looking on and, on the whole, appear to be mightily pleased with the world. The nations are daily making thousands of human sacrifices to the Unknown God; the mothers are offering on his altar the very flesh of their flesh; the philosophers from their secluded academies, and the men of religion from the twilight of their churches, send messages of hope, giving to the God the names of the things each of them loves. They build small temples of paper with fine columns of words in the markets and at the crossways to shelter their tiny idols of clay, their several real images of the God. And the men who are driven by a force too strong for them to resist it and are grateful for the deceit that gives a name and an illusory aim to their sacrifices, flock to the improvised temples in the markets and at the crossways, on their way to the larger temple with its dome of clouds and of stars, where the true rites are celebrated and the awful God receives his due.

Well, let us join the discordant chorus of praise and thanks, and say that this God has been merciful to us also. We owe him this benefit, that all the illusions regarding the value of human thought as independent of the needs and greeds of common humanity have fallen to the ground,

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and while common men and common women on the fields of battle, at sea and in the houses of sorrow, are showing themselves much better than our schools, our parliaments, our churches could ever have hoped to make them, the proud of the earth, the intellectual, the spiritual, stand before us, revealed in their shameful and piteous nakedness. We know from their utterances in these times of stress that the whole of their sham activity has always been nothing but an impotent effort to express in rational terms the feelings and the desires that make life possible and lovable to them, and that the field of their vision is not any wider or clearer than that of the unborn child in the warm and moist darkness of the maternal womb.

I have said "the value of human thought": I should have said the value of official, recognized, representative thought and religion. There have been, and perhaps there are even now, some men for whom the business of thought has not been a pretence and a fraud, but as much a true life and an austere militancy as that of the soldier and sailor; some men for whom thought has been their true life and not a quarry of commonplaces for the justification of a different and lower life. Besides the philosophy of the schools and the religion of the churches, there are in the history of mankind a few isolated individuals who have faced life only with the strength of their unaided soul; it is from them that the schools and the churches have stolen the sacred spark to kindle their comfortable little fires; it is to them that we may still look for an example when everything else has failed us. Philosophy is then no more to us the prearranged cycle of reality unfolding itself in thought, of the Hegelian, or the unborn science that the realist affectionately nurses; but just a collection of a few supreme views of life, of a few equations of individual souls to infinite truth, of a few definite truths strangely resembling each other though varying in form and often

apparently contradictory. Philosophy is then nothing if not ethical and personal.

II.

The work of Carlo Michelstaedter answers these two requirements. It is personal ethics. If I had to find a place for it in one of those ludicrous puppet-shows called histories of philosophy, I am afraid it would refuse to be put anywhere or would turn out to be tremendously anachronistic. It refuses to be explained by any shuffling of *Kulturgeschichte*.

Although his name was German and his blood, I think, partly Jewish, he came to us from Gorizia, a Venetian town of unredeemed Italy, as much an Italian as any man can be. And he wrote a beautiful, nervous and supple prose of his own that, if into any language, could be properly translated only into Greek. His thoughts seemed to find their natural medium of expression in Greek, and Greek phrases and words and particles are continually interwoven in his Italian prose like an efflorescence of a deeper self. He had certainly read much, but he had a wonderful power of going back from the complicated superstructures of intellect to the elemental realities of life: and in the purity and directness of his speculation he had very few helpers and companions: Plato before his senile decadence and in his faithfulness to Socrates; Parmenides and Heraclitus among the pre-Socratics; Æschylus, Sophocles, and our Greek Leopardi among the poets; Christ, who talks Greek in the New Testament. From the dark depths of the sacred books one kindred voice responded to him in the solemn music of Ecclesiastes.

No more need be said about his culture but that before his mind was completely absorbed by his work he had given some years of his life to mathematics and had emerged from them, as I think, with empty hands but with a sharper

sight. His life is summed up in a few words. He was a student of *literae humaniores* at the University of Florence; he committed suicide in his native town of Gorizia in his twenty-third year, at the end of October 1910. Before deliberately sending a bullet through his heart he had accomplished his *opus* and sent it in a spirit of bitter scorn as his thesis for the degree to his university. He was a good climber of mountains, a keen sailor, a healthy and handsome young man. He had in Florence a small band of adoring friends, and wealth and the love of women. He did not commit suicide through wretchedness and despair or in a cowardly fear of what life might have brought to or withdrawn from him; his action seemed to him to be the necessary development of his thought, the highest affirmation of his life. His suicide was a purely metaphysical, or ethical, one. I am sorry for those who delight in explaining away what is unpalatable to them in thought by finding particular reasons and motives in the psychology of the thinker, but although I cannot say that I entirely feel that his truth is my truth (and which truth is *the* truth?), I understand when I read him that the man who has said what he said cannot go on living—in the same sense in which the Lord said to Moses: "Thou canst not see my face; because man cannot see me, and live."

The writings of Michelstaedter have been edited by his friend Vladimiro Arangio-Ruiz in two slender volumes (*Scritti di Carlo Michelstaedter*, Genova, 1912-13) of not more than two hundred and fifty pages altogether. The first volume comprises his *Dialogo della Salute* and a few lyrical poems; the second his thesis, *La Persuasione e la Rettorica*, where the ideas rapidly and dramatically expressed in the dialogue are more fully developed and expounded. A third volume which has not yet appeared will contain appendices and explanatory notes to the matters treated in the second.

It is not an easy task to give in brief the main lines of Michelstaedter's thought. He wrote so little that nothing is to be found in his pages that might be considered as superfluous. They stand before us in the white heat of an all-pervading moral enthusiasm that gives to each of them an unforgettable physiognomy and a meaning necessary to the understanding of every other. But although quoting from them is to me like tearing a beautiful organism asunder I must try to define his position and I shall do so as far as possible by means of extracts and in his own words. What I am interested in now is in fact only to make his words known to those who have not yet heard as much as his name.

III.

I know that I will, and there is nothing for me to will. A weight hangs from a hook, and as it hangs it suffers in that it cannot descend: it cannot come off the hook, as it hangs owing to the fact that it is a weight, and its weight is its dependence. We want to satisfy it: we free it from its dependence, we let it go, that it may satisfy its hunger for a lower point and descend independent until it is satisfied with descending. But at each of the points it successively reaches it will never be contented to stop and it still wishes to descend, for the next point is always lower than the one it occupies. And none of the future points will ever be such as to satisfy it, each of them being necessary to its life only as long as a lower point awaits it, ὅφρα ἄν μένῃ αὐτόν; but every time, each point, when it is made actual, will become for it devoid of every attraction, no longer being a lower point; so that *in each point it feels the want of the lower points* and more and more do these attract it. It always has the same hunger for the lower, and its will to descend remains infinite, since, if the will could become finite in any particular point and the weight

could there obtain the infinite descent in the infinite future, in that point it would no longer be what it is, a weight.

Its life consists in this lacking in life. If it did not want anything but was *finite* and could possess itself in its perfection it would have ceased to exist. The weight is to itself a hindrance to possessing its life, and it is only because of itself that it is never able to be satisfied. The weight can never be *persuaded* (II, 1-2).

And no life is ever sated with living in any present, for it is life only inasmuch as it continues itself, and it continues itself in the future only inasmuch as it lacks living. If it possessed itself fully, now and here, and lacked nothing, if nothing awaited it in the future, it would not continue itself: it would cease to be life (II, 2).

What we call life is this perpetual deficiency through which everything that lives dies at every instant continuing itself and which at every point expresses itself in the will of determinate things entering into some relation with some other thing. Every thing at every point does not possess any other thing but is a will of a determinate possession, that is, a determinate attribution of value, a determinate consciousness. While entering into a relation with the given thing it believes to be in the act of possession, and is nothing but a determinate power, a *finita potestas.* Every present, every actuality, what at any time, under any condition, we call life, is the infinitely variable conjunction of the powers determinately localized in the infinitely variable aspects, as a consciousness to which its correlate is every time stable in its own instability. There is nothing that is *per se,* but only in relation to a consciousness. Life is therefore an infinite correlativity of consciousness (II, 6, 7).

An organic life is a complex of wills of determinate things. The organism determines itself successively in relation to the several things; but to every single determina-

tion is inherent the sense that it takes place not *per se* but only because it is necessary to the continuation of the organism. Herein is the sweet taste that every thing has in life and such is the voice of all other things toward which the organism shall determine itself in the future. Inasmuch as a thing is pleasant the whole self is in it *in actu*. And as it strives for the thing as for its possession it extracts from the thing the illusion of individuality. What I like, what is useful to me,—this is my consciousness, this is my reality. So reality ὀνομάζεται καθ' ἡδονὴν ἑκάστου, is named according to each man's pleasure. Every individual that wills to be, and instead of that becomes in time, is *actual* in every instant with the whole of its will. Pleasure and pain are the sum of life. Every act tells life: *"Thou art"* (I, 17, 18).

Every act helps man to build up his fictitious self; so that each time, in the actuality of his affirmation, he feels himself above and distinct from the present instant, and from the relation that belongs to that instant. He feels himself always the same in different times and in relation to different things; he says, *"I am"* (II, 14).

Such is the process of constitution of our illusory individuality, such is the inadequate persuasion that rules our life. Everybody knows as much as he wills, sees as much as he lives, as much of the distant as his pleasure makes near to him. But then he calls his world, which is nothing but his correlate, *the* world, and his volition of himself in the future, the end, the *raison d'être*, the meaning of his single acts (II, 16, 17).

His power over the things is at every point limited by the limited prevision of the satisfaction of his particular need. From the relation with the thing, he does not get the possession of the thing, but merely the security of his own life; but even this is soon at an end and the narrowness of his horizon is actual in every point through the

superficiality of the given relation. So while the possession of the thing escapes him, so does also the mastery of his life, as he cannot affirm himself infinitely but only in relation to the finite circle of his existence; he cannot rest in any given actuality but is dragged by time to affirm himself within the ever receding limits without being able to get more of the things and to reach, through their possession, the actual possession of himself, the true persuasion. In this way the God of φιλοψυχία ("love of life," "cowardice") flatters him and laughs at him (II, 17, 18).

But man, even when he rejoices in a particular affirmation, feels that this self is not his own self, that he does not possess it; and beyond the circle of his prevision, which brings near to him the distant things and which surpasses the given contingencies to which his self is sufficient, he feels the stirring of infinite other wills in whose contingency also are the things which are in his consciousness and on which his future depends. Under the superficiality of his pleasure he feels the flowing of what is outside his powers and transcends his consciousness. The known (finite) woof of the illusory self illuminated by pleasure is not close enough to prevent the darkness of the unknown (infinite) from showing through. And his pleasure is polluted by a dull and perpetual pain whose obscure voice the thirst of life represses in the continuous succession of single determinations. Men fear pain, and to escape it apply to it as a palliative the *faith* in a power adequate to the infinity of the unknown power, whom they charge with the weight of the pain that they cannot sustain. The God they honor, to whom they give all, is the God of φιλοψυχία, pleasure: this is the familiar god, the dear, affable and known one. They have created the other one and they pay him in order that he should take upon himself what, transcending the power of the individual, always appears to each man as *chance,* and should guard the

house while they banquet, and turn everything for the best (II, 18, 19).

But every time that solitude and darkness, that misfortune and death put man face to face with himself, and the particular values upon which his life depends seem to lose every power of attraction, and his consciousness is reduced to an obscure will for which there is nothing to be willed, the voice of the dull and perpetual pain is heard alone and awful in his timorous heart. This pain is common to all things that live without having their life in themselves, that live without persuasion, in the fear of death. And when it falls drop by drop in every instant of life nobody knows it, or it is called joy; when it is all-pervading in the terrors of night and solitude everybody feels it but in the light of day declares himself again happy and sufficient and self-satisfied (II, 23).

As long as the chain of the relations that constitute our life remains uninterrupted, as it probably is in animals and in primitive man, life is a rapid succession of determinate volitions, of definite pleasures and definite pains. The illusory possession is sufficient to each particular instant and fills it entirely. Consciousness is only the consciousness of the particular act, which makes possible to us the perpetuation of our will in always new relations: in each act there shines before us our whole future: in pursuing another animal we see the possibility of eating and sleeping and drinking; in eating, the possibility of running and resting, and so on *ad infinitum* (II, 12).

Pleasure is then the actuality of my whole self as a determinate power in its affirmation: food is sweet to me as such and inasmuch as it suits me (II, 73).

But when in the chain there are some links missing, when the succession is interrupted, when man feels the insufficiency of his self and his heart fails in the face of what transcends his power, when he has lost his *salute*

(health) consisting in the adequation of his will to all his single relations, he turns back to find again those positions in which the actual sense of his self had flattered him with the voice of pleasure: *thou art,* or those that he knows to be prodigal of pleasure to others (II, 73, 74).

But he is then like him who wants to see the shadow of his own profile, and as he turns toward it he has already destroyed it (I, 19; II, 73).

Because when he seeks pleasure for the sake of the pleasure and not of the thing, when he no more desires the food, the woman, the wine, as necessary to the continuation of his power, to his *salute,* and in the measure to it, he is really seeking what already ceases to be the moment he seeks it. Euridice whom the gods of Avernus concealed to Orpheus, was the flower of his song, of his unconquered soul. When he, on the rough and dark road to life, overcome by his anguish and love, turned back, already Euridice was no more.

Man tries again and again to put himself in the known positions, but now he finds them unsuitable, tasteless, unpleasant. He has lost the *salute*; the taste was in the actuality of his own self that willed to be and enjoyed in it the illusion of individuality; when he wills it as a value *per se* he doubles himself, he looks at himself as in a mirror, he wants to enjoy himself twice (II, 74).

He no longer enjoys because he is, but it is *he* who enjoys, and in reality he does not enjoy any more (I, 19).

Pleasure is no more for him his pleasure but is the commonplace "pleasure." And toward *it* he affirms himself always inadequately as he has lost the real sense of the relation and is outside his own power. Such is the rhetoric of pleasure (II, 74).

Rhetoric and its counterpart, *Persuasion,* the two words that form the title of Michelstaedter's book need, I think, a brief explanation, although their meaning is perhaps

already clear by their use in the preceding pages. Michelstaedter, like every man who thinks for himself, very often puts new meanings in old words. It is a habit which makes careful thinkers angry, for they say that in that way they do not know what one is talking, or even thinking, about. I feel very sorry for them but I am afraid it cannot be helped. When the old word is part of a living thought it cannot help growing and changing with it. And to refuse new meanings is the same thing as to refuse new thoughts. But a real thinker is never rash and arbitrary in his extension of meanings: he does it naturally, without doing violence to the old values. Michelstaedter was besides a very minute observer of some subtle phenomena of language which he thought could reveal to him some of the innermost workings of the human mind: and, in his writing, practically every word has a deeper, truer meaning than in ordinary speech.

To be persuaded, to have the persuasion, means to possess one's life, to be the master of oneself: to possess in truth that self that the voice of pleasure, at every new relation into which we enter, fictitiously grants us. Of this true persuasion we shall talk later on; of the fictitious, illusory one enough has been said as regards its natural, necessary aspect. This illusory persuasion has no voice; it exhausts itself entirely in any given relation; and at every moment of our life we could not affirm anything but the presence of the relation that belongs to it. But man through his φιλοψυχία feels the need of assigning a value to things irrespective of any particular relation, and the need of saying at the same time that his life is not in them, is free, is *persuaded,* knows. When he says 'this is,' he affirms directly his own self, his own reality: he wills something, he affirms the mode of his will. In the moment that he gives a thing as real outside himself he expresses the taste that things have for him, his own consciousness,

his knowledge—whatever it may be. Through his illusion he says that what is for him, *is*; he says it is good or bad, according to his liking or disliking it. But when he says, 'I know that this is,' he affirms himself in contraposition to an element of reality which is nothing but the affirmation of his own self; he wills himself willing, he puts his self in one of its affirmations as being real outside himself (II, 63-64).

Now for himself man either knows or does not know, but he says that he knows for others. His knowledge is in life, for life, but when he says "I know," he says to the others that he is alive, in order to get from the others something that is not given to him through his affirmation of life. He wants to constitute for himself an absolute self. That is what Michelstaedter calls "Rhetoric" and defines as the inadequate affirmation of individuality. The rhetoric of pleasure is but one of its particular forms, perhaps the first and most elementary. The rhetoric of knowledge follows it: the philosopher and the scientist are in a sense younger than the *gourmet* and the *viveur*.

As a child in the darkness shouts to give himself a sign of his own self which he feels to be failing in the infinite fear; so men who feel to be failing in the solitude of their empty souls, affirm themselves inadequately by simulating the sign of the self they do not possess, the knowledge, as if it were already in their hands. They hear no longer the voice of things that says to them: '*thou art*,' and in the darkness every one seeks the hand of his companion and says: 'I am, thou art, we are,' in order that the other may mirror him and say to him: 'thou art, I am, we are'—and they repeat together: 'we are, because we know, because we can say to each other the words of knowledge, of free and absolute knowledge.' As they have nothing and can give nothing, they take refuge in words that feign a communication. As they cannot each of them

make of his world the world of the other they simulate words containing the absolute world, and with words they feed their *ennui,* words they apply as a palliative to their pain; in words they express what they do not know and what they need in order to mitigate their pain. Every word contains the mystery, and in words they trust, with words they weave a new veil for the darkness, **καλλωπίσματα ὄρφνης**. "God help me"—as I have not the courage to help myself (II, 66).

They want knowledge, and knowledge is constituted. Knowledge is by itself the aim of life. There are the parts of knowledge, and the road to knowledge, and men who give it. It is bought and sold at a given price, in a given time, with a given amount of work. So rhetoric flourishes by the side of life: man puts himself in the position of knowledge, *posizione conoscitiva*, and makes knowledge. But as knowledge is in that way a necessity it is necessary also that there should always be a demand for it. If it were otherwise, the men who know, for whom should they know? What would a nurse be if there were no patients? And what a strange creature would then the physician be! But the patients are created. When the young spread their wings to rise from the accustomed life, when the cry of life, strange and obscure to themselves, bursts from their heart, when they ask to be truly men,—that is nothing, they say, but *thirst for knowledge.* And with the water of knowledge they quench their flame. The end, the *raison d'être,* and freedom and justice and possession, —everything is given to them in finite *words* which are applied to different things and then abstracted from them. If in everything they ask for life, of everything is given to them, in answer to their demand, the **ὄνομα ἐπίσημον,** the name that stands for a conventional sign. In this sign, through this convention, they presume they have the knowledge, each time a small piece of knowledge which, joined

with and subordinated to other pieces through the wonderful concatenation of philosophical curiosity, may form a system of names and constitute for them the inviolable possession of *absolute knowledge* (II, 67, 68).

The position of the knower is analogous to that of the *viveur*; the *viveur* craves for the sweetness of pleasure independently from the necessary relation which is the only source of pleasure, the knower feigns to himself an absolute life in the elaboration of knowledge, and says: γλυκὺ τὸ γνῶναι. But both are in reality already outside the healthy life, the *salute*, of their organism, both have lost the sweetness of pleasure and of knowledge (II, 75).

And similar to the philosophical rhetoric is the scientific rhetoric. "If philosophy has raved in its metaphysical exaltations we are putting it now on a positive ground, and here, keeping contact with reality, we have a sure road for the conquest of truth." That is what modern science says. It would be enough to ask what difference there is between reality and truth, by which, although you are in contact with reality, you must still go along a road that takes you to truth (II, 87).

Either we possess reality or we do not; either we know, and we are as many Gods in the peace of eternity; or we do not know, and—"But reality, the scientist would answer, is reality and thought is thought. When one puts his teeth in contact with an apple he needs must labor with his jaws in order to eat it. So it is with reality. At each instant of his life man comes into contact with a portion of reality; each man in his life has come into contact with one portion of reality only. Each age, each generation, each century, each civilization comes into contact with one portion only. Thousands of years shall pass, and it will never be all. What does 'either we know or we do not know' mean? We know one portion to-day and another to-morrow, and always new portions in each day of our life, and we be-

queath our several portions from generation to generation in order that the body of human science be constituted" (II, 88).

But to be able not only to bequeath his portion but even to keep it for himself each man must continually bind up its fragments σὺν αἰτίας λογισμῷ: he must treasure up his experience. And here again he anticipates in his particular knowledge the totality of knowledge: which is the αἰτία, which is the possible λογισμός, of the man who does not yet possess truth but must wait for it through the flight of thousands of years? "But here reason has only the function of giving logical connection to fragmentary experience; and the thing that matters is experience, objective experience" (II, 89).

But the objectivity of the scientist is still τρόπον τινά a subjectivity, as it is very different from the catastrophic objectivity of the man who sees things as they are, not because he needs them, but *per se,* of the man who is at last made one with the things, has all things in himself, is *persuaded,* knows. It is not the identity of my consciousness with the consciousness of things but the infinitesimal consciousness of the infinitesimal relation, and in that consciousness the illusion of the absence of any individual assent. Illusion, because the assent cannot be suppressed: to have an objective experience I must look at things that I do not see: because I see the things I see, through the assent of my whole self. And to look objectively at a given thing means to bring it near to the eye so that it may awaken its assent; not to the eye as an organ of my body but to the eye as such, as a system of lenses which should give to the thing its inorganic assent (II, 91-92).

To intensify this obtuse autonomous life of the senses science multiplies their power by means of scientific instruments. But this intensification is nothing but a repetition of the act of bringing the thing near to the eye, an

amplification of the same particular determination (II, 96). The scientist, whatever he does, always remains confined, at each moment of his activity, to a single relation, and all his efforts and instruments cannot do more than infinitesimally to reduce the extension of the given relation. But it is exactly by doing so, by essentially consisting in the repetition of the same small relations which not only do not exact but do not even tolerate the presence of the whole self, that science has planted its roots in the deepest weakness of man and given stable constitution to the rhetoric of knowledge. In the infinite number of things that they look at but do not see, the scientists bring the little light of their dark lantern to extract from the contemporaneity and succession of a given series of relations a presumption of causality: a humble hypothesis which should become a theory or a law (II, 100).

Michelstaedter is well aware that science is conscious of its finite and relative value in contrast to the infinity of its task—and that in this consciousness the scientist finds a guarantee of his own honesty. But it is precisely against this conception that he is fighting, against the affirmation of the sufficiency of a work which at each of its points is finite, as an answer to the demand for persuasion. Every particular truth of science, every portion of science, suffers from the infinite correlation with the whole of reality that science itself declares to be outside its power (II, 101, 102).

But apart from their function as researchers of truth the scientists have another which will introduce us to the last form of rhetoric, the rhetoric of society. By reproducing and simplifying given relations they are able to attain practical results; and that makes them unconscious instruments in the development of the κοινωνία κακῶν, the society of the evil ones (II, 105). Types of the κοινωνία κακῶν in different forms are Hegel's concept of state and John Stuart Mill's idea of liberty; the state that feigns to

us a larger self and an external aim to life; the liberty which consists only in the freedom of being in society, of being slaves (II, 109-111). The foundation of society is the need of securing in the future the affirmation of our own determination against all other stranger or hostile determinations (forces): of conquering matter, that is time and the variety of things or space, with our form. In matter are comprised also other men who differ from the rest of matter only in so far as they determine themselves in the same way as we do in order to continue ourselves, and impose on matter the same form that we impose on it. Our security therefore means (1) violence against nature, work; (2) violence against man, property (II, 115-116). Work and property constitute the society of man, the relation between the strong who affirms himself and the weak who sells himself, the master and the slave, both bound by the same chain to their different positions. But in a highly organized society every man imposes his violence on every other man through the omnipotence of organization; every man is matter and form, master and slave at the same time, as the common advantage grants to all the same rights and imposes on all the same duties. Through security and specialization man becomes weaker and weaker and his self more and more limited until he is little more than an inorganic will to live and everything he does is alien to him, imposed on him from the outside, not his life but his work, which he gives to society as the price of that security which otherwise could be reached only through individual superiority. And society, besides granting him the continuation of his life, the satisfaction of his inorganic will, gives to him in exchange for his work the fruition of all that human intellect has produced and accumulated in the course of centuries. An inferior individuality can thus secure for itself the fruits of the work of

superior individualities: this is the meaning of the rhetoric of society, or social optimism (II, 143, 144).

The impulse to this movement, through which the weak enjoys what rightly belongs to the strong, is given by the strong, who either through ambition or through love lay the foundations of human society. But the dream of the brotherhood of the good, ἀγαθῶν φιλία, which was in the mind and in the heart of the prophet, is the source of strength for the organization of the hostile wills that use his uncomprehended symbolical forms, the fruit of his negation, toward the security of their affirmation of life: the society of the evil ones (II,152). And they call injustice, justice; slavery, freedom; what is good for their life, morality.

The perpetuation of the social system is secured through the violence exercised on the children under the mask of love and education: what Michelstaedter calls δυσπαιδαγωγία. The cry for true life is thirst for knowledge; the great expectation, the will for good, is flattered by the fiction of a value in the social self, which is always kept before their eyes as the one that they must by imitation educate in themselves. By the system of punishments and rewards the child acquires the habit of considering his study as a necessary work if he wants to live happy, even if it is *per se* entirely alien to his life. So are imposed on him the given words, the given commonplaces, the given judgments, all the καλλωπίσματα of science and convenience which he is to take with himself to his grave. And the whole of his life will be organized on the same plan as his school-days, as the whole of human life in society is a perpetual being under age ruled by the rhetoric of duty and pleasure.

IV.

These are the main lines of Michelstaedter's critique of life, of his negation. His affirmation is in what he calls persuasion.

In whichever way man asks to continue himself, as he affirms to be just what is just for him he denies what is just for others and is unjust against all others: the affirmation of his self is always irrational and violent. But Justice (the just man, the individual who has reason in himself) is a hyperbole: that is what all say, and then turn back to live as if they had it. Hyperbolic indeed is the road of persuasion that leads to it. As the hyperbola gets infinitely nearer and nearer to the asymptote, so the man who, living, wills to live his own life, approaches to the straight line of justice; and as, however small the distance of a given point of the hyperbola from the asymptote, the curve must be infinitely prolonged to touch the straight line, so however little man, while he lives, may ask as just for himself, his duty toward justice remains infinite. The right to live cannot be paid with a finite work but only with an infinite activity. As you take part in the violence of all things all this violence is in your debt toward justice. To take it up by its roots the whole of your activity must go. To give all, to ask for nothing, such is duty (II, 45, 47).

But to give is to do the impossible: to give is to have. As long as man lives he is here, and there is the world; as long as he lives he wills to possess it; as long as he lives, in some way or other he affirms himself; he gives and asks, he enters into the cycle of relations;—and always here is he and there is the world, different from him. But in face of what was to him a given relation in which he affirmed himself, asking to continue himself, now he must affirm himself in order not to continue himself. He must love it,

not because it is necessary to his need but just for what it is in itself, he must give all to it in order to have it all. He must not see in it a particular relation but the whole world, and in relation to it he must not be his hunger,his languor, his craving for love, his need, he must be all himself. In that last present he must have all and give all, be persuaded and persuade, possess himself in the world, be one with the world. He must feel himself in the desert among the particular relations, as in none of them he can affirm himself as a whole; but in each thing that these relations offer to him he must love the life of the thing and use not the relation: affirm himself without asking. And again his life is not what this thing believes to be just for itself, he must not ask even this of the things and make of himself an instrument for their demand; for, being just to one thing, he would be unjust to the other, he would reflect the contingency of their consciousness; but he must himself will them, create them, love all himself in them, and by communicating the individual value identify himself with them (II, 49, 50).

Then the dumb and blind pain of all things, which, in so far as they will to be, are not, will have through him, who shall have taken their person, the eloquent word and the distant sight. He shall see that it is not hunger, nor thirst, nor sickness, nor misfortune, which makes man suffer; not food or drink, or apparent health, or the presence of what is in his hands, and is not his because he has no power over it, which makes him content; but he will see that in him suffers the dull pain, in each present always equally empty whether in abundance or in privation. He will suffer in the same point from his deficiency and from theirs, and, using the voice of his pain, he will speak to them with the voice of their own pain, distant itself from them. As through his intense activity he will be near to satiate his own pain, so he will bring nearer to them a life through which they will see the woof of what

oppresses them, of what successively distracts them, dissolve; will find that they are stable, without fear of instability; will suddenly perceive the walls of the little room of their misery being burst open and their little light becoming pale, in the moment when darkness will no more be outside to oppress them with its terrors,—but it will appear to them as the dawn of a new day (II, 52-53).

The man who is on the road to persuasion maintains in each point the equilibrium of his self. He does not struggle, he has no uncertainty nor weariness if he does not fear pain and has honestly identified himself with it. He lives it at every point. And as this pain is common to all things, things live in him not as the correlate of a few relations but with vastness and depth of relations. Where for others is darkness, for him is light, because the circle of his horizon is wider; where for others is misery and impotence, he has power and sees clearly. Because he has the honesty always to feel himself insufficient in face of the *infinita potestas,* he always makes himself more sufficient to things, always suffices more deeply to the eternal deficiency of things (II, 54, 55).

Therefore in his presence, in his acts, in his words, a life that transcends the shortsightedness of men reveals itself, unfolds itself, grows nearer and tangible. Hence Christ wears a halo, the stones become bread, the sick are healed, the cowards are made martyrs, and men cry: "Behold a miracle." Therefore each word of his is luminous, for they are so closely bound in their depth as to create the presence of what is distant. He can give the distant things in the near appearances, so that even he who lives only by these feels therein a sense which he was ignorant of—he can move every heart (II, 55).

The thing which he knows, and which is the taste of his wider life, is his pleasure, actual for him in every present. Alone in the desert he lives his life in dazzling vastness

and depth. While the φιλοψυχία accelerates time, always craving for the future, and changes one void present for the next, the stability of the individual anticipates an infinite time in actuality, and arrests time. Each instant of his life is a century in the life of others—until he makes of himself a flame, and comes to consist in the last present. In it he will be persuaded and have through persuasion peace—δι' ἐνεργείας ἐς ἀργίαν (II, 56).

V.

The few lyrical poems which are published in the first volume of Michelstaedter's works will certainly range among the best of their kind in Italian literature. I append the translation of one of them, addressed to his sister Paula and written by him two months before his death, which will give, I hope, an insight into the sweetness and depth of feeling underlying his apparently pitiless thought. For daring to attempt such a translation into a language still unfamiliar to me I offer my humblest apologies to the reader.

Even as swallows year by year return
Back to the nests that held them featherless,
So man goes back in the course of his days,
Time after time to the thought of his cradle.
And as every year he keeps that day,
That to hunger and thirst, to sorrow and grief,
That to this mortal life did him awaken,
Every year he persuades himself again
To love his life.

And the parents who in the newly-born,
In the fragile and helpless little being,
Saw the fruit of their hopes;
And holding out to him with timorous love
All that life gives to him who asks to live,
Made of his tears a veil for their own eyes;

Trusting that clothes and food
Could make him live his life;
Year after year revive their ancient hope,
Their ancient grief,
And with a veil still cover their tired eyes,
Offering thanks to him for being born,
That he may thank them for his life, and that
The dumb grief be forgotten, and the vain
Promise be ever present.
But may the wish, that, what he never had,
Even for an instant,
Should come to him through long luminous years,
Lend the light that it borrows from the future
To the day of his birth, and multiplying
Illusions, may it persuade him
That his hunger is good, and life sufficient
Is this our daily death.
May gifts and kisses and the table spread,
Sweet words in plenty, plenty of sweet things,
Blithe promises and glances full of trust,
Make the familiar room joyous and bright,
And shield it from the terrors of the night.

Paula, I cannot say sweet words to thee,
And things that might be dear I do not know,
Because dumb grief has spoken unto me,
And told me that which every heart suffers
Unknowingly, unconfessed to itself.
Beyond the window-panes of the bright room,
Which the accustomed images reflect,
The darkness I can see, still threatening,
And stay and rest I cannot in the desert.
O, let me go, Paula, through the night,
There to create my own light by myself,
Let me go through the desert, to the sea,
That I may bring thee back the gift of light.
....more than thou thinkest, thou art dear to me.

RAFFAELLO PICCOLI.

CAMBRIDGE, ENGLAND.

THE PHILOSOPHY OF MR. B*RTR*ND R*SS*LL.

[Some further fragments found in a *Prayer Book of Free Man's Worship*[1] rescued with a few of the late Mr. R*ss*ll's belongings; see *The Monist*, Vol. XXI, October, 1911, pp. 483-508. The abbreviations used in the present instalment are as follows:

A. A. W. Lewis Carroll, *Alice's Adventures in Wonderland*, London, Macmillan, 1905. People's edition.

T. L. G. Lewis Carroll, *Through the Looking-Glass, and What Alice Found There*, London, Macmillan, 1915. People's edition.

H. S. Lewis Carroll, *The Hunting of the Snark: an Agony in Eight Fits*, London, 1911.

E. N. Richard Dedekind, *Essays on the Theory of Numbers*, Chicago and London, 1901.

P. E. Bertrand Russell, *Philosophical Essays*, London and New York, 1910.

Pr. M. Bertrand Russell, *The Principles of Mathematics*, Vol. I, Cambridge, University Press, 1903.

P. M. Alfred North Whitehead and Bertrand Russell, *Principia Mathematica*, Vol. I, Cambridge, 1910.

P. P. Bertrand Russell, *The Problems of Philosophy*, London and New York, 1912.

M. *The Monist*: *a Quarterly Magazine Devoted to Science and Philosophy*, Chicago and London.]

THE TERM "LAWS OF THOUGHT."

People often assume that laws of logic are laws of thought.[2] Perhaps the most frequent instance is the treatment of an identity as if its validity were a matter of our permission. Some people suggest to others that they should "let bygones be bygones."

[1] This apparently refers to the Essay on "The Free Man's Worship" on pp. 59-70 of the *Philosophical Essays* (London, 1910) of Mr. B*rtr*nd R*ss*ll's distinguished contemporary, Mr. Bertrand Russell, from whom Mr. R*ss*ll's philosophy was derived.

[2] Cf. *P. P.*, pp. 113, 136.

OBJECTIVE VALIDITY OF THE LAWS OF THOUGHT.

I once inquired of a maid-servant whether her mistress was at home. She replied, in a doubtful fashion, that she *thought* that her mistress was in unless she was out. I concluded that the maid was uncertain as to the objective validity of the law of the excluded middle, and remarked this to her mistress. Her mistress seemed to imagine that I wished to impute to the maid some moral defect of an unimportant nature, and remonstrated with me in an amused way. The mistress probably imagined that I meant to find fault with the maid's capacity for thinking, as I used the phrase "law of thought," and perhaps committed the common mistake of supposing that a "law of thought" has something to do with thinking.

CRITICISM.

Those people who think that it is more godlike to seem to turn water into wine than to seem to turn wine into water surprise me. I cannot imagine an intolerable critic. It seems to me that, if A resents B's criticism in trying to put his (A's) discovery in the right or wrong place, A acts as if he thought he had some private property in truth. The White Queen seems to have shared the popular misconception as to the nature of criticism.[3]

THE PRAGMATIST THEORY OF TRUTH.

The pragmatist theory that "truth" is a belief which works well sometimes conflicts with common sense and not with logic. It is commonly supposed that it is always better to be sometimes right than to be never right. But this is by no means true. For example, consider the case of a watch which has stopped; it is exactly right twice every day. A watch, on the other hand, which is always five minutes slow is never exactly right. And yet there can be

[3] See Appendix A, below.

UMI

no question but that a belief in the accuracy of the watch which was never right would, on the whole, produce better results than such a belief in the one which had altogether stopped. The pragmatist would, then, conclude that the watch which was always inaccurate gave truer results than the one which was sometimes accurate. In this conclusion the pragmatist would seem to be correct, and this is an instance of how the false premises of pragmatism may give rise to true conclusions.

From the text written above the church clock in a certain English village: "Be ye ready, for ye know not the time," we would conclude that the clock never stopped for a period as long as twelve hours. For the text is a rather vague symbolical expression of a propositional function which is asserted to be true at all instants. The proposition that a (presumably intelligent) observer of the clock at any definite instant does not know the time, implies, then, that the clock is always wrong. Now if the clock stopped for twelve hours it would be absolutely right at least once. It might be right twice if it were right at the first instant it stopped or the last instant at which it went;[4] but the second possibility is excluded by hypothesis, and the occurrence of the first possibility—or of the analogous possibility of the stopped clock being right three times in twenty-four hours—does not affect the present question. Hence the clock can never stop for twelve hours.

The pragmatist's criterion of truth appears to be far more difficult to apply than the Bellman's[5] that what he said three times is true, and to give results just as insecure.

THE SYNTHETIC NATURE OF DEDUCTION.

Doubt has often been expressed as to whether a syllogism can add to our knowledge in any way. J. S. Mill and

[4] Both cases cannot occur; the question is similar to that arising in a discussion of what is meant by saying "Socrates is mortal," see below.

[5] See Appendix B, below.

H. Poincaré in particular held the opinion that the conclusion of a syllogism is an "analytic" judgment in the sense of Kant, and therefore could be obtained by the mere dissection of the premises. Any one, then, who maintains that mathematics is founded solely on logical principles, would appear to maintain that mathematics, in the last instance, reduces to a huge tautology.

John Stuart Mill, in Chapter III of Book II of his *System of Logic,* said that "it must be granted that in every syllogism, considered as an argument to prove the conclusion, there is a *petitio principii.* When we say

All men are mortal,
Socrates is a man,
therefore
Socrates is mortal,

it is unanswerably urged by the adversaries of the syllogistic theory, that the proposition, Socrates is mortal, is presupposed in the more general assumption, All men are mortal; that we cannot be assured of the mortality of all men unless we are already certain of the mortality of every individual man; that if it be still doubtful whether Socrates, or any other individual we choose to name, be mortal or not, the same degree of uncertainty must hang over the assertion, All men are mortal; that the general principle, instead of being given as evidence of the particular case, cannot itself be taken for true without exception until every shadow of doubt which could affect any case comprised with it is dispelled by evidence *aliunde*; and then what remains for the syllogism to prove? That, in short, no reasoning from general to particular can, as such, prove anything, since from a general principle we cannot infer any particulars but those which the principle itself assumes as known. This doctrine appears to me irrefragable. . . ."

"It is," says Mr. Russell,[6] "an old debate among philosophers whether deduction ever gives *new* knowledge. We can now see that in certain cases at least it does do so. If we already know that two and two always make four, and that Brown and Jones are two, and so are Robinson and Smith, we can deduce that Brown and Jones and Robinson and Smith are four. This is new knowledge, not contained in our premises, because the general proposition, 'two and two are four,' never told us there were such people as Brown and Jones and Robinson and Smith, and the particular premises did not tell us that there were four of them, whereas the particular proposition deduced does tell us both these things. But the newness of the knowledge is much less certain if we take the stock instance of deduction that is always given in books on logic, namely 'All men are mortal; Socrates is a man, therefore Socrates is mortal.' In this case what we really know beyond reasonable doubt is that certain men, A, B, C, were mortal, since, in fact, they have died. If Socrates is one of these men it is foolish to go the roundabout way through 'all men are mortal' to arrive at the conclusion that *probably* Socrates is mortal. If Socrates is not one of the men on whom our induction is based we shall still do better to argue straight from our A, B, C, to Socrates, than to go round by the general proposition, 'all men are mortal.' For the probability that Socrates is mortal is greater, on our data, than the probability that all men are mortal. (This is obvious, because if all men are mortal, so is Socrates; but if Socrates is mortal, it does not follow that all men are mortal.) Hence we shall reach the conclusion that Socrates is mortal, with a greater approach to certainty if we make our argument purely inductive than if we go by way of 'all men are mortal' and then use deduction."

Many years ago there appeared, principally owing to

[6] *P. P.*, pp. 123-125.

the initiative of Dr. F. C. S. Schiller of Oxford, England, a comic number of *Mind*. The idea was extraordinarily good, not so the execution. A German friend of Dr. Schiller was puzzled by the appearance of the advertisements which had a doubtfully humorous appearance. However, by a syllogistic process, he acquired information which was new and useful to him, and thus incidentally refuted Mill. Presumably he started from the title of the magazine (*Mind*!), for a mark of exclamation seems nearly always in German to be a sign of an intended joke (including of course the mark after the politeness expressed in the first sentence of a private letter or a public address). There would be, then, the following syllogism:

> This is a book of would-be jokes (i. e., everything in this book is a would-be joke);
> This advertisement is in this book;
> Therefore, this advertisement is a would-be joke.

Thus the syllogism may be almost as powerful an agent in the detection of humor as M. Bergson's criterion shortly to be described.

THE MORTALITY OF SOCRATES.

The mortality of Socrates is so often asserted in books on logic that it may be as well briefly to consider what it means. The phrase "Socrates is mortal" may be thus defined: "There is at least one instant t such that t has not to Socrates the one-many relation R which is the converse of the relation 'exist at,' and all instants following t have not the relation R to Socrates, and there is at least one instant t' such that neither t' nor any instant preceding t' has the relation R to Socrates."

This definition has many merits. In the first place, no assumption is made that Socrates ever lived at all. In the second place, no assumption is made that the instants of time form a continuous series. In the third place, no as-

sumption is made as to whether Socrates had a first or last moment of his existence. If time be indeed a continuous series, then we can easily deduce[7] that there must have been *either* a first moment of his existence *or* a last one, but not both; just as there seems to be either a greatest weight that a man can lift or a least weight that he cannot lift, but not both.[8]

IMPLICATION.

A distinguished philosopher (M) once thought that the logical use of the word "implication,"—any false proposition being said to "imply" any proposition true or false,—is absurd, on the grounds that it is ridiculous to suppose that the proposition "2 and 2 make 5" implies the proposition "M is the Pope." This is a most unfortunate instance, because it so happens that the false proposition that 2 and 2 make 5 can rigorously be proved to imply that M, or anybody else other than the Pope, is the Pope. For if 2 and 2 make 5, since they also make 4, we could conclude that 5 is equal to 4. Consequently, subtracting 3 from both sides, we conclude that 2 would be equal to 1. But if this were true, since M and the Pope are two, they would be one, and obviously then M would be the Pope.

DENIAL OF GENERALITY, AND GENERALITY OF DENIAL.

The conclusion of a certain song[9] about a young man who poisoned his sweetheart with sheep's-head broth, and was frightened to death by a voice exclaiming:

> "Where's that young maid
> What you did poison with my head?"

at his bedside, gives rise to difficulties which are readily solved by a symbolism that brings into relief the principle that the denial of a universal and non-existential proposition

[7] From "Dedekind's axiom" (*E. N.*, p. 11).

[8] Cf. *M.*, April, 1908.

[9] To which De Morgan drew attention in a letter; see (Mrs.) S. E. De Morgan, *Memoir of Augustus De Morgan*, London, 1882, p. 324.

is a particular and existential one. The conclusion of the song is:

> "Now all young men, both high and low,
> Take warning by this dismal go!
> For if he'd never done nobody no wrong,
> He might have been here to have heard the song."

It is an obvious error, say Whitehead and Russell,[10] though one easy to commit, to assume that the cases: (1) all the propositions of a certain class are true; and (2) no proposition of the class is true; are each other's contradictories. However, in the modification[11] of Frege's symbolism which was used by Russell,

(1) is $(x).\ x,$

and (2) is $(x).\ \text{not}\ x;$

while the contradictory of (1) is

$$\text{not}\ (x).\ x.$$

The last line of the above verse may, then, be written

$$(t).\text{not}\ (x).\ \text{not not}\ \varphi(x,t),$$

where "$\varphi(x,t)$" denotes the unasserted propositional function "the doing wrong to the person x at the instant t." By means of the principle of double negation we can at once simplify the above expression into:

$$(t).\text{not}\ (x).\varphi(x,t);$$

which can be thus read: "If at every instant of his life there was at least one person x to whom he did no wrong (at that instant)." It is difficult to imagine any one so sunk in iniquity that he would not satisfy this hypothesis. We are forced, then, unless our imagination for evil is to be distrusted, to conclude that any one might have been there to have heard that song. Now this conclusion is probably

[10] *P. M.*, p. 16.

[11] However, here, for the printer's convenience, we depart from Mr. Russell's usage so far as to write "not" for a curly minus-sign.

false, possibly on physical grounds, and certainly on esthetic grounds.

According as the symbol for "not" comes before the (x) or between the (x) and the φx, we have an expression of what Frege called respectively the denial of generality, and the generality of denial. The denial of the generality of a denial is the form of all existential propositions, while the assertion of or denial of generality is the general form of all non-existential or universal propositions.

LOGICAL ADDITION AND THE NATURE OF SYMBOLISM.

Frequently ordinary language contains subtle psychological implications which cannot be translated into symbolic logic except at great length. Thus if a man (say Mr. Jones) wishes to speak collectively of himself and his wife, the order of the mentioning of the terms in the class considered and the names applied to these terms are, logically speaking, irrelevant. And yet, more or less definite information is given about Mr. Jones, provided that he is an Englishman, according as he talks to his friends of

(1) Mrs. Jones and I,
(2) I (or me) and my wife (or missus),
(3) My wife and I,
or (4) I (or me) and Mrs. Jones.

In case (1) one is probably correct in placing Mr. Jones among the clergy or the small professional men who make up the bulk of the middle-class; in case (2) one would conclude that Mr. Jones belonged to the lower middle-class; the form (3) would be used by Mr. Jones if he were a member of the upper, upper middle, or lower classes; while form (4) is only used by retired shop-keepers of the lower middle-class of which a male member usually combines belief in the supremacy of man with belief in the dignity of his wife as well as himself. A further complication is

introduced if a wife is referred to as "the wife." This has already been briefly referred to in my note on "The."[12] Cases (2) and (3) then each give rise to one more case. Cases (1) and (4) do not, since nobody has hitherto referred to his wife as "the Mrs. Jones,"—at least without a qualifying adjective before the "Mrs."

On the other hand, certain descriptive phrases and certain propositions can be expressed more shortly and more accurately by means of symbolic logic. Let us consider the proposition: "No man marries his deceased wife's sister." If we assume, as a first approximation, that all marriages are fertile, and that all children are legitimate, then, with only four primitive ideas: the relation of parent to child (P) and the three classes of males, females, and dead people, we can define "wife" (a female who has the relation formed by taking the relative product of P and $\breve{P}$[13] to a male), "sister," "deceased wife," and "deceased wife's sister" in terms of these ideas and of the fundamental notions of logic. Then the proposition: "no man marries his deceased wife's sister," can be expressed unambiguously by about twenty-nine simple signs on paper, whereas, in words, the unasserted statement consists of no less than thirty-four letters. Although, legally speaking, we should have to adopt somewhat different definitions and possibly increase the complications of our proposition, it must be remembered that, on the other hand, we always reduce the number of symbols in any proposition by increasing the number of definitions in the preliminaries to it.

By such means we may advance a step toward making legal definitions and propositions exact, and thus logic can make contributions to law in return for those made by law to logic.[14]

[12] See *M.*, Oct., 1911, Vol. XXI, p. 492.
[13] C. S. Peirce's notation for the relation "converse of P."
[14] See *M*, Oct., 1911, Vol. XXI, pp. 484-485, 492.

IDENTITY OF CLASSES.

I once heard of a somewhat meritorious lady who was extremely conventional, and, on the slender grounds of carefully acquired habits of preferring the word "woman" to the word "lady" and of going to the post-office without a hat, imagined that she was unconventional and altogether a remarkable person, and once remarked with great satisfaction that she was a very queer person, and that nothing shocked her "except, of course, bad form."

Thus, she asserted that all the things which shocked her were actions in bad form; and she would undoubtedly agree, though she did not actually state it, that all the things which were done in bad form would shock her. Consequently she asserted that the class of things which shocked her was the class of actions in bad form. Consequently the statement of this lady that some or all of the actions done in bad form shocked her is an identical proposition of the form: "nothing shocks me, except, of course, the things which do, in fact, shock me"; and this statement the lady certainly did not intend to make.

This excellent lady, had she but known it, was logically justified in making any statement whatever about her unconventionality. For the class of her unconventional actions was the null class. Thus she might logically have made inconsistent statements about this class of actions. As a matter of fact she did make inconsistent statements, but unfortunately she justified them by stating that, "It is the privilege of woman to be inconsistent." She was one of those persons who say things like that.

ETHICAL APPLICATIONS OF THE LAW OF IDENTITY.

It may be remembered that Mr. Podsnap remarked, with sadness tempered by satisfaction, that he regretted to say that "Foreign nations do as they do do." Besides aiding the comforting expression of moral disapproval, the

law of identity has yet another useful purpose in practical ethics: It serves the welcome purpose of providing an excuse for infractions of the moral law. There was once a man who treated his wife badly, was unfaithful to her, was dishonest in business, and was not particular in his use of language; and yet his life on earth was described in the lines:

> "This man maintained a wife's a wife,
> Men are as they are made,
> Business is business, life is life,
> And called a spade a spade."

One of the objects of Mr. G. E. Moore's *Principia Ethica*[15] was to argue that the word "good" means simply good, and not pleasant or anything else. Appropriately enough, this book bore on its title-page the quotation from the preface to the *Sermons,* published in 1726, of Bishop Joseph Butler, the author of the *Analogy*: "Everything is what it is and not another thing."

But another famous Butler—Samuel Butler, the author of *Hudibras,*—went farther than this and maintained that identities were the highest attainment of metaphysics itself. At the beginning of the first Canto of *Hudibras,* in the description of Hudibras himself, Butler wrote:

> "He knew what's what, and that's as high
> As metaphysic wit can fly."

I once conducted what I imagined to be an esthetic investigation for the purpose of discovery, by the continual use of the word "Why?"[16] the grounds upon which certain people choose to put milk into a tea-cup before the tea. I was surprised to discover that it was an ethical, and not an esthetic problem; for I soon elicited the fact that it was done because it was "right." A continuance of my patient questioning elicited further evidence of the fundamental character of the principle of identity in ethics; for it was right, I learned, because "right is right."

[15] Cambridge, 1903.

[16] Cf. *P. E.*, p. 2.

It appears that some people unconsciously think that the principle of identity is the foundation, in certain religions, of the reasons which can be alleged for moral conduct, and are surprised when this fact is pointed out to them. The late Sir Leslie Stephen, when traveling by railway, fell into conversation with an officer of the Salvation Army, who tried hard to convert him. Failing in this laudable endeavor, the Salvationist at last remarked: "But if you aren't saved, you can't go to heaven!" "That, my friend," replied Stephen, "is an identical proposition."

DIGNITY.

We have seen[17] that logical implication is often an enemy of dignity. The subject of dignity is not usually considered in treatises on logic, but, as we have remarked,[18] many mathematicians implicitly or explicitly seem to fear either that the dignity of mathematics will be impaired if she follow out conclusions logically, or that only an act of faith can save us from the belief that, if we followed out conclusions logically, we should find out something alarming about the past, present, or future of mathematics.

Thus it seems necessary to inquire rather more closely into the nature of dignity, with a view to the discovery of whether it is, as is commonly supposed, a merit in life and logic.

The chief use of dignity is to veil ignorance. Thus it is well known that the most dignified people, as a rule, are schoolmasters; and schoolmasters are usually so occupied with teaching that they have no time to learn anything. And because dignity is used to hide ignorance, it is plain that impudence is not always the opposite of dignity, but that dignity is sometimes impudence. Dignity is said to inspire respect; and this may be in part why respect for

[17] *M*, Oct., 1911, Vol. XXI, p. 497.

[18] *Ibid.* Cf. also the section below on "The Paradoxes of Logic."

others is an error of judgment and self-respect is ridiculous.

Self-respect is, of course, self-esteem. William James has remarked that self-esteem depends, not simply upon our success, but upon the ratio of our success to our pretensions, and can therefore be increased by diminishing our pretensions. Thus if a man is successful, but only then, can he be both ambitious and dignified. James also implies that happiness increases with self-esteem. Likeness of thought with one's friends, then, does not make one happy, for otherwise a man who esteemed himself little would be indeed happy. Also if a man is unhappy he could not, from our premises, by the principles of the syllogism and of contraposition, be dignified,—a conclusion which should be fatal to many novelists' heroes.

A reflection on pessimism to which this discussion gives rise is the following. It would appear that a man's self-esteem would be increased by a conviction of the unworthiness of his neighbors. A man, therefore, who thinks that the world and all its inhabitants, except himself, are very bad, should be extremely happy. In fact the effects would hardly be distinguishable from those of optimism. And optimism, as everybody knows, is a state of mind induced by stupidity.

THE PARADOXES OF LOGIC.

We have already[19] referred to the contempt shown by some mathematicians for exact thought, which they condemn under the name of "scholasticism." An example of this is given by Schoenflies in the second part of his publication usually known as the *Bericht über Mengenlehre*.[20] Here[21] a battle-cry in italics:

[19] *M*, Oct., 1911, Vol. XXI, p. 486.

[20] *Die Entwickelung der Lehre von den Punktmannigfaltigkeiten. Bericht, erstattet der deutschen Mathematiker-Vereinigung*, Leipsic, 1908.

[21] *Ibid.*, p. 7. The battle-cry is: *"Gegen jede Resignation, aber auch gegen jede Scholastik!"*

"Against all resignation, but also against all scholasticism!"

found utterance. Later on Schoenflies[22] got bolder and adopted a more personal battle-cry, also in italics and with a whole line to itself:

"For Cantorism but against Russellism!"

"Cantorism" means the theory of transfinite aggregates and numbers erected for the most part by Georg Cantor. Shortly speaking, the great sin of "Russellism" is to have gone too far in the chain of logical deduction for many mathematicians, who were perhaps, like Schoenflies,[23] blinded by their rather uncritical love of mathematics. Thus it comes about that Schoenflies[24] denounces Russellism as "scholastic and unhealthy." This queer blend of qualities would surely arouse the curiosity of the most *blasé* as to what strange thing Russellism must be.[25]

Schoenflies[26] said that some mathematicians attributed to the logical paradoxes which have given Russell so much trouble to clear up, "especially to those that are artificially constructed, a signification that they do not have." Yet no grounds were given for this assertion, from which it might be concluded that the rigid examination of any concept was unimportant. The paradoxes are simply the necessary results of certain logical views which are currently held, which views do not, except when they are examined rather closely, appear to contain any difficulty. The contradiction is not felt, as it happens, by people who confine

[22] "Ueber die Stellung der Definition in der Axiomatik," *Jahresber. der deutsch. Math.-Ver.*, Vol. XX, 1911, pp. 222-255. The battle-cry is on p. 256 and is: *"Für den Cantorismus aber gegen den Russellismus!"*

[23] *Ibid.*, p. 251. *"Es ist also,"* he exclaims with the eloquence of emotion and the emotion of eloquence, *"nicht die Geringschätzung der Philosophie, die mich dabei treibt, sondern die Liebe zur Mathematik;...."*

[24] *Ibid.*

[25] Cf. for this, *M*, Jan., 1912, Vol. XXII, pp. 149-158.

[26] *Bericht*, 1908, p. 76*n*; cf. p. 72.

their attention to the first few number-classes of Cantor, and this seems to have given rise to the opinion, which it is a little surprising to find that some still hold, that cases not usually met with, though falling under the same concept as those usually met with, are of little importance. One might just as well maintain that continuous but not differentiable functions are unimportant because they are artificially constructed,—a term which I suppose means that they do not present themselves when unasked for. Rather should we say that it is by the discovery and investigation of such cases that the concept in question can alone be judged, and the validity of certain theorems—if they are valid—conclusively proved. That this has been done, chiefly by the work of Russell, is simply a fact; that this work has been and is misunderstood by many[27] is regrettable for this reason, among others, that it proves that, at the present time, as in the days in which *Gulliver's Travels* were written, some mathematicians are bad reasoners.

Nearly all mathematicians agreed that the way to solve these paradoxes was simply not to mention them; but there was some divergence of opinion as to how they were to be unmentioned. It was clearly unsatisfactory merely not to mention them. Thus Poincaré was apparently of opinion that the best way of avoiding such awkward subjects was to mention that they were not to be mentioned. But[28] "one might as well, in talking to a man with a long nose, say: 'When I speak of noses, I except such as are inordinately long,' which would not be a very successful effort to avoid a painful topic."

Schoenflies, in his paper of 1911 mentioned above, adopted the convenient plan of referring these logical difficulties at the root of mathematics to a department of

[27] E. g., in F. Hausdorff's review of Russell's *Principles* of 1903 in the *Vierteljahrsschr. für wiss. Philos. und Soziologie.*

[28] Russell, *A. J. M.*, Vol. XXX, 1908, p. 226.

knowledge which he called "philosophy." He said[29] of the theory of aggregates that though "born of the acuteness of the mathematical spirit, it has gradually fallen into philosophical ways, and has to some extent the compelling force which dwells in the mathematical process of conclusion."

The majority of mathematicians have followed Schoenflies rather than Poincaré, and have thus adopted tactics rather like those of the March Hare and the Gryphon,[30] who promptly changed the subject when Alice raised awkward questions. Indeed, the process of the first of these creatures of a child's dream is rather preferable to that of Schoenflies. The March Hare refused to discuss the subject because he was bored when difficulties arose. Schoenflies would not say that he was bored,—he professed interest in philosophical matter,—but simply called the logical continuation of a subject by another name when he did not wish to discuss this continuation, and thus implied that he had discussed the whole subject. Further, Schoenflies would not apparently admit that the one method of logic could be applied to the solution of both mathematical and philosophical problems, in so far as these problems are soluble at all; but the March Hare, shortly before the remark we have just quoted, rightly showed great astonishment that butter did not help to cure both hunger and watches that would not go.[31] The judgment of Schoenflies by which certain apparently mathematical questions were condemned as "philosophical" rested on grounds as flimsy as those in the Dreyfus Case or the Trial in *Wonderland*.[32]

MODERN LOGIC AND SOME PHILOSOPHICAL ARGUMENTS.

The most noteworthy reformation of recent years in logic is the discovery and development by Mr. Bertrand

[29] *Loc. cit.*, p. 222.
[30] See Appendix C.
[31] See Appendix D.
[32] See Appendix E.

Russell of the fact that the paradoxes,—of Burali-Forti, Russell, König, Richard and others,—which have appeared of late years in the mathematical theory of aggregates and have just been referred to, are of an entirely *logical* nature, and that their avoidance requires us to take account of a principle which has been hitherto unrecognized, and which renders several well-known arguments in refutation of scepticism, agnosticism, and the statement of a man that he asserts nothing, invalid.

Dr. Whitehead and Mr. Russell say in their *P. M.*:[33] "The principle which enables us to avoid illegitimate totalities may be stated as follows: 'Whatever involves *all* of a collection must not be one of the collection,' or conversely: 'If, provided a certain collection had a total, it would have members only definable in terms of that total, then the said collection has no total.' We shall call this the 'vicious-circle principle,' because it enables us to avoid the vicious circles involved in the assumption of illegitimate totalities. Arguments which are condemned by the vicious-circle principle will be called 'vicious-circle fallacies.' Such arguments, in certain circumstances, may lead to contradictions, but it often happens that the conclusions to which they lead are in fact true, though the arguments are fallacious. Take, for example, the law of excluded middle in the form 'all propositions are true or false.' If from this law we argue that, because the law of excluded middle is a proposition, therefore the law of excluded middle is true or false, we incur a vicious-circle fallacy. 'All propositions' must be in some way limited before it becomes a legitimate totality, and any limitation which makes it legitimate must make any statement about the totality fall outside the totality. Similarly the imaginary sceptic who asserts that he knows nothing and is refuted by being asked if he knows that he knows nothing, has asserted nonsense, and has been falla-

[33] P. 40.

ciously refuted by an argument which involves a vicious-circle fallacy. In order that the sceptic's assertion may become significant it is necessary to place some limitation upon the things of which he is asserting his ignorance; the proposition that he is ignorant of every member of this collection must not itself be one of the collection. Hence any significant scepticism is not open to the above form of refutation."

THE HIERARCHY OF JOKES.

Jokes may be divided into various types. Thus a joke or class of jokes which is itself the subject of a joke can only be the subject of a joke of higher order. Otherwise we would get the same vicious-circle fallacy which gives rise to so many paradoxes in logic and mathematics. Thus a certain Oxford scholar succeeded, to his own satisfaction, in reducing all jokes to primitive types consisting of thirty-seven proto-Aryan jokes. When any proposition was propounded to him he would reflect and afterwards pronounce on the question as to whether the proposition was a joke or not. If he decided, by his theory, that it was a joke he would solemnly say: "There is that joke." If this narration is accepted as a joke, since it cannot be reduced to one of the proto-Aryan jokes under pain of leading us to commit a vicious-circle fallacy, we must conclude that there is at least one joke which is not proto-Aryan; and, in fact, is of a higher type. There is no great difficulty, in point of principle, in forming a hierarchy of jokes of various types. Thus a joke of the fourth type (or order) is as follows: A joke of the first order was told to a Scotchman, who, as we would expect, was unable to see it. The person (A) who told this joke told the story of how the joke was received to another Scotchman, thereby making a joke about a joke of the first order, and thus making a joke of the second order. A remarked on this joke that no joke

could penetrate the head of the Scotchman to whom the joke of the first order was told even if it were fired into his head with a gun. The Scotchman, after severe thought, replied: "But ye couldn't do that, ye know!" *A* repeated the whole story, which constituted a joke of the third order, to a third Scotchman. This Scotchman again, after prolonged thought, replied: "He had ye there!" This whole story is a joke of the fourth order.

Most known jokes are of the first order, for the simple reason that the majority of people find that the slightest mental effort effectually destroys any perception of humor. It seems to me that a joke becomes more pleasurable in proportion as logical faculties are brought into play by it, and hence that logical power is allied, or possibly identical, with the power of grasping more subtle jokes. The jokes which amuse the frequenters of music-halls, Conservatives, and Mr. Bergson—and which usually deal with accidents, physical defects, mothers-in-law, foreigners, or over-ripe cheese—are usually jokes of the first order. Jokes of the second, and even of the third, order appeal to ordinary well-educated people; jokes of higher order require either special ability or a sound logical training on the part of the hearer if the joke is to be appreciated; while jokes of transfinite order presumably only excite the inaudible laughter of the gods.

LAUGHTER.

In a review[34] of Bergson's book on *Laughter*,[35] Mr. B. Russell has remarked:

"It has long been recognized by publishers that everybody desires to be a perfect lady or gentleman (as the case may be); to this fact we owe the constant stream of

[34] "The Professor's Guide to Laughter," *The Cambridge Review*, Vol. XXXII, 1912, pp. 193-194.

[35] *Laughter, an Essay on the Meaning of the Comic*, English translation by C. Brereton and F. Rothwell, London, 1911.

etiquette-books. But if there is one thing which people desire even more, it is to have a faultless sense of humor. Yet so far as I know there is no book called 'Jokes without Tears, by Mr. McQuedy.' This extraordinary lacuna has now been filled. Those to whom laughter has hitherto been an unintelligible vagary, in which one must join, though one could never tell when it would break out, need only study Mr. Bergson's book to acquire the finest flower of Parisian wit. By observing a very simple formula they will know infallibly what is funny and what is not; if they sometimes surprise their unlearned friends they have only to mention their authority in order to silence doubt. 'The attitudes, gestures and movements of the human body,' says M. Bergson, 'are laughable in exact proportion as that body reminds us of a mere machine.' When an elderly gentleman slips on a piece of orange peel and falls, we laugh, because his body follows the laws of dynamics instead of a human purpose. When a man falls from a scoffolding and breaks his neck on the pavement, we presumably laugh even more, since the movement is even more completely mechanical. When the clown makes a bad joke for the first time, we keep our countenance, but at the fifth repetition we smile, and at the tenth we roar with laughter, because we begin to feel him a mere automaton. We laugh at Molière's misers, misanthropists and hypocrites, because they are mere types mechanically dominated by a master impulse. Presumably we laugh at Balzac's characters for the same reason; and presumably we never smile at Falstaff, because he is individual throughout."

The review concludes with the reflection that "it would seem to be impossible to find any such formula as M. Bergson seeks. Every formula treats what is living as if it were mechanical, and is therefore by his own rule a fitting object of laughter." Now this undoubtedly true conclu-

sion has been obtained, as is readily seen, by a vicious-circle fallacy.

HISTORICAL CRITICISM.

From a problem in Diophantus's *Arithmetic* about the price of some wine it would seem that the wine was of poor quality, and Paul Tannery has suggested that the prices mentioned for such a wine are higher than were usual until after the end of the second century. He therefore rejected the view which was formerly held that Diophantus lived in that century.[36]

The same method applied to a problem given by the ancient Hindu algebraist Brahmagupta, who lived in the seventh century after Christ, might result in placing Brahmagupta in prehistoric times. This is the problem:[37] "Two apes lived at the top of a cliff of height h, whose base was distant mh from a neighboring village. One descended the cliff and walked to the village, the other flew up a height x and then flew in a straight line to the village. The distance traversed by each was the same. Find x."

THE HUMOR OF MATHEMATICIANS.

Brahmagupta's problem appears to be the earliest instance of a kind of joke which has been much used by mathematicians. For the sake of giving a certain picturesqueness to the data of problems and so to excite that sort of interest which is partly expressed by a smile, mathematicians have got into the habit of talking, for example, of monkeys in the form of geometrical points climbing up massless ropes. Prof. P. Stäckel[38] truly remarked that physiological mechanics—the mechanics of bones, muscles, and so on—is wholly different from this. There was once a

[36] W. W. Rouse Ball, *A Short Account of the History of Mathematics*, 4th ed., London, 1908, p. 109.

[37] *Ibid.*, pp. 148-149.

[38] *Encykl. der math. Wiss.*, Vol. IV, part I, p. 474.

lecturer on mathematics at Cambridge, England, who used yearly to propound to his pupils a problem in rigid dynamics which related to the motion of a garden roller supposed to be without mass or friction, when a heavy and perfectly rough insect walked round the interior of it in the direction of normal rolling.

Hitherto this has been the only mathematical outlet for the humor of mathematicians; and those who really had the interests of mathematics at heart saw with alarm the growing tendency towards scholasticism in mathematical jokes. Fortunately the discovery of logic by some mathematicians has removed this danger. Still to many mathematicians logic is still unknown, and to them—to Prof. A. Schoenflies for example—modern mathematics, owing to its alliance with logic, appears to be sinking into scholasticism. It is true that the word "scholasticism" is not used by Professor Schoenflies in any intentionally precise signification, but merely as a vague epithet of disapproval, very much as the word "socialism" is used by the ordinary philistine, and this would certainly serve as a sufficient excuse. But no excuse is needed: these opinions are themselves a source of mathematical jokes.

THE CONVERSION OF RELATIONS.

The "Conversion of Relations" does not mean what it might be supposed to mean; it has nothing to do with what Kant called "the wholesome art of persuasion." What concerns us here is the convertibility of a logical relation. If A has a certain relation R to B, the relation of B to A, which may be denoted by $\breve{R}$, is called the *converse* of R. As De Morgan[39] remarked, this conversion may sometimes present difficulties. The following is De Morgan's example:

"Teacher: 'Now, boys, Shem, Ham and Japheth were

[39] *Trans. Camb. Phil. Soc.*, Vol. X, 1864, part II, note on page 334.

Noah's sons; who was the father of Shem, Ham and Japheth?' No answer.

"Teacher: 'Boys, you know Mr. Smith, the carpenter, opposite; has he any sons?'

"Boys: 'Oh! yes Sir! there's Bill and Ben.'

"Teacher: 'And who is the father of Bill and Ben Smith?'

"Boys: 'Why Mr. Smith to be sure.'

"Teacher: 'Well, then, once more, Shem, Ham and Japheth were *Noah's* sons; who was the father of Shem, Ham and Japheth?'

"A long pause; at last a boy, indignant at what he thought the attempted trick, cried out: 'It *couldn't* have been Mr. Smith.' These boys had never converted the relation of father and son,..."

FINITE AND INFINITE.

I was once shown a statement made by an eminent mathematician of Cambridge (England) from which one would conclude that this mathematician thought that finite distances became infinite when they were great enough. In one of those splendidly printed books, bound in blue, published by the University Press, and sold at about a guinea as a guide to some advanced branch of pure mathematics, one may read, even in the second edition published in 1900, the words: "Representation [of a complex variable] on a plane is obviously more effective for points at a finite distance from the origin than for points at a very great distance."

Plainly some of the points at a very great distance are at a *finite* distance, for the same author mentions that Neumann's sphere for representing the positions of points on a plane "has the advantage....of exhibiting the uniqueness of $z=\infty$ as a value of the variable."

THE MATHEMATICAL ATTAINMENTS OF TRISTRAM SHANDY.

Tristram Shandy[40] said that his father was sometimes a gainer by a misfortune; for if the pleasure of haranging about it was as ten, and the misfortune itself only as five, he gained "half in half," and was well off again as if the misfortune had never happened.

Suppose that the unit (arbitrary) of pleasure is denoted by A, Tristram Shandy, by neglecting, in this ethical discussion, to introduce negative quantities (Kant's pamphlet advocating this introduction into philosophy was made subsequently)[41] apparently made 15 A to result, and this can hardly be maintained to be the half of 10 A. It is possible however that Tristram Shandy succeeded in proving the apparently paradoxical equation

$$15\,A = 5A$$

by remarking that the axiom "the whole is greater than the part" does not always hold. This remark follows at once from what Mr. Russell[42] has called "The Paradox of Tristram Shandy." This paradox is described by Mr. Russell as follows:

"Tristram Shandy, as we know, took two years writing the history of the first two days of his life, and lamented that, at this rate, material would accumulate faster than he could deal with it, so that he could never come to an end. Now I maintain that, if he had lived for ever, and not wearied of his task, then, even if his life had continued as eventfully as it began, no part of his biography would have remained unwritten."

This paradox is strictly correlative to the well-known

[40] Cf. a letter of De Morgan's in Mrs. De Morgan's *Memoir of Augustus De Morgan*, p. 324.

[41] Kant's tract was published in 1763, while *Tristram Shandy* was published in 1760.

[42] *Pr. M.*, pp. 358-359; cf. *M*, Jan., 1912, Vol. XXII, p. 187.

paradox of Zeno's about Achilles and the Tortoise.[43] "The Achilles proves that two variables in a continuous series, which approach equality from the same side, cannot ever have a common limit: the Tristram Shandy proves that two variables which start from a common term, and proceed in the same direction, but diverge more and more, may yet determine the same limiting class (which however is not necessarily a segment, because segments were defined as having terms beyond them). The Achilles assumes that whole and part cannot be similar, and deduces a paradox; the other, starting from a platitude, deduces that whole and part may be similar. For common sense, it must be confessed, that is a most unfortunate state of things." And Mr. Russell considers that, in the face of proofs, it ought to commit suicide in despair.

Now I suggest the extremely unlikely possibility that Tristram Shandy, by reflection on his own life and literary labors, was led to the correct course of accepting the paradox which resulted from this reflection and rejecting the Achilles. Thus, he concluded that an infinite whole may be similar (or, in Cantor's terminology, equivalent) to a proper part of itself, and hence, by a confusion of similarity with identity (or equivalence with equality) which he shares with some subsequent philosophers,[44] that a whole may be equal to a proper part of itself. If A is an infinite class it is not difficult to see that we can have

$$10A = 5A.$$

In this way many have avoided an opinion which rests on no better foundation than that formerly entertained by the inductive philosophers of Central Africa, that all men are black.[45]

[43] Cf. *Pr. M.*, pp 350, 358-359; *M.*, Vol. XXII, 1912, p. 157.
[44] Cf., for example, Cosmo Guastella, *Dell' infinito*, Palermo, 1912.
[45] Cf. Russell, *Pr. M.*, p. 360.

THE HARDSHIPS OF A MAN WITH AN UNLIMITED INCOME.

I once heard a man refer to his income as limited, in order to illustrate the hardships of a class of men, of which he of course was one, in having to pay a somewhat high income-tax. It is obvious that this man spoke enviously, and consequently admitted the existence of more fortunately placed individuals such that at least one had an unlimited income. A little reflection would have shown the man that he was not taking up a paradoxical attitude. A "paradoxical attitude" is of course the assertion of one or more propositions of which the truth cannot be perceived by a philosopher—and particularly an idealist—and can be perceived by a logician and occasionally but not always by a man of common sense. Such propositions are: "The cat is hungry," "Columbus discovered America," and "A thing which is always at rest may move from the position A to the different position B."

Now if a man had an unlimited income it is an immediate inference that, however low income-tax might be, he would have to pay annually to the exchequer of his nation a sum equal in value to his whole income. Further, if his income was derived from a capital invested at a finite rate of interest (as is usual), the annual payments of income-tax would each be equal in value to the man's whole capital. If, then, the man with an unlimited income chose to be discontented, he would be sure of a sympathetic audience among philosophers and business acquaintances; but discontent could not last long, for the thought of the difficulties he was putting in the way of the chancellor of the exchequer, who would find the drawing up of his budget most puzzling, would be amusing. Again, the discovery that, after paying an infinite income-tax, the income would be quite undiminished, would obviously afford an uneasy satisfaction.

THE RELATIONS OF MAGNITUDE OF CARDINAL NUMBERS.

The theorems of cardinal arithmetic are frequently used in ordinary conversation. What is known as the Schröder-Bernstein theorem was used, long before Bernstein or Schröder, by Thurlow, afterward the law-lord Lord Thurlow, when an undergraduate of Trinity College, Dublin. Thurlow was rebuked for idleness by the provost (I think) who said to him: "Whenever I look out of the window, Mr. Thurlow, I see you crossing the court." The provost thus asserted a one-one correspondence between the class A of his acts of looking out of the window and a part of the class B of Thurlow's acts of crossing the court. Thurlow asserted in reply a one-one correspondence between B and a part of A: "Whenever I cross the court I see you looking out of the window." The Schröder-Bernstein theorem then allows us to conclude that there is a one-one correspondence between the classes A and B. That A and B were finite classes is not the fault of the provost or Thurlow; nor is it relevant logically.

THE EVIDENCE OF GEOMETRICAL PROPOSITIONS.

It has often been maintained that the twentieth proposition of the first book of Euclid—that two sides of a triangle are together greater than the third side—is evident even to asses. This does not however seem to me generally true. I once asked a coastguardsman the distance from A to B; he replied: "eight miles." On further inquiry I elicited the fact that the distance from A to C was two miles and the distance from C to B was twenty-two miles. Now the paths from A to B and from C to B were by sea, while the path from A to C was by land. Hence if the path by land was rugged and the distance along the road was two miles, it would appear that the coastguardsman believed that not only could one side of a triangle be

greater than the other two but that one straight side of a triangle might be greater than one straight side and any curvilinear side of the same triangle. The only escape from part of this astonishing creed would be by assuming that the distance of two miles from A to C was measured "as the crow flies," while the road A to C was so hilly that a pedestrian would traverse more than fourteen miles when proceeding from A to C. Then indeed the coastguardsman could maintain the true proposition that there is at least one triangle ABC, with the side AC curvilinear, such that the sum of the lengths of AB and AC is greater than the length of BC, and only deny the twentieth proposition of the first book of Euclid.

Reasoning with the coastguardsman only had the effect of his adducing the authority of one Captain Jones in support of the accuracy of his data. Possibly Captain Jones held strange views as to the influence of temperature or other physical circumstances or even the nature of space itself on the lengths of lines in the neighborhood of the triangle ABC.

ABSOLUTE AND RELATIVE POSITION.

Some people maintain that position in space or time must be relative because, if we try to determine the position of a body A, if bodies B, C, D with respect to which the position of A could be determined were not present, we should be trying to determine something about A without having our senses affected by other things. These people seem to me to be like the cautious guest who refused to say anything about his host's port-wine until he had tasted red ink.

"Wherein, then," says Mr. B. Russell,[46] "lies the plausibility of the notion that all points are exactly alike? This notion is, I believe, a psychological illusion, due to the fact

[46] *Mind*, N. S., No. 39 (July, 1901), pp. 313-314.

that we cannot remember a point so as to know it when we meet it again. Among simultaneously presented points it is easy to distinguish; but though we are perpetually moving, and thus being brought among new points, we are quite unable to detect this fact by our senses, and we recognize places only by the objects they contain. But this seems to be a mere blindness on our part,—there is no difficulty, so far as I can see, in supposing an immediate difference between points, as between colors, but a difference which our senses are not constructed to be aware of. Let us take an analogy: Suppose a man with a very bad memory for faces; he would be able to know, at any moment, whether he saw one face or many, but he would not be aware whether he had seen any of the faces before. Thus he might be led to define people by the rooms in which he saw them, and to suppose it self-contradictory that new people should come to his lectures, or that old people should cease to do so. In the latter point at least it will be admitted by lecturers that he would be mistaken. And as with faces, so with points,—inability to recognize them must be attributed, not to the absence of individuality, but merely to our incapacity."

Another form of this tendency is shown by Kronecker, Borel, Poincaré and many other mathematicians, who refuse mere logical determination of a conception and require that it be actually described in a finite number of terms. These eminent mathematicians were anticipated by the empirical philosopher who would not pronounce that the "law of thought" that A is either in the place B or not is true until he had looked to make sure. This philosopher was of the same school as J. S. Mill and Buckle, who seemed to have maintained implicitly not only that, in view of the fact that the breadth of a geometrical line depends upon the material out of which it is constructed, or upon which it is drawn, that there ought to be a paste-

board geometry, a wooden geometry, a stone geometry, and so on;"[47] but also that the foundations of logic are inductive in their nature.[48] "We cannot," says Mill,[49] conceive a round square, nor merely because no such object has ever presented itself in our experience, for that would not be enough. Neither, for anything we know, are the two ideas in themselves incompatible. To conceive a body all black and yet white, would only be to conceive two different sensations as produced in us simultaneously by the same object—a conception familiar to our experience—and we should probably be as well able to conceive a round square as a hard square, or a heavy square, if it were not that in our uniform experience, at the instant when a thing begins to be round, it ceases to be square, so that the beginning of the one impression is inseparably associated with the departure or cessation of the other. Thus our inability to form a conception always arises from our being compelled to form another contradictory to it."

THE LAW OF CONTRADICTION.

Considering the important place assigned by philosophers and logicians to the law of contradiction, the remark will naturally be resented by many of the older schools of philosophy and especially by Kantians, that "in spite of its fame we have found few occasions for its use."[50]

THE PRINCIPLE OF PERMANENCE.

In their readiness to consider many different things as one thing,—to consider, for example the ratio 2:1 as the same thing as the cardinal number 2,—such mathematicians as Peacock, Hankel and Schubert were forestalled

[47] J. B. Stallo, *The Concepts and Theories of Modern Physics*, 4th ed., London, 1900, pp. 217-227.

[48] *Ibid.*, pp. 140-144.

[49] *Examination of the Philosophy of Sir William Hamilton*, Vol. I, p. 88, Amer. ed.

[50] *P. M.*, p. 116.

by the Pigeon, who thought that Alice and the Serpent were the same creature, because both had long necks and ate eggs.[51]

It is however doubtful whether the Pigeon would have followed the example of the mathematicians just mentioned so far as to embrace the creed of nominalism and so to feel no difficulty in subtracting from zero,—a difficulty which was pointed out with great acuteness by the Hatter[52] and modern mathematical logicians.

NOMINALISM.

One of the chief differences between logicians and men of letters is that the latter mean many different things by one word, whereas the former do not—at least nowadays. Most mathematicians belong to the class of men of letters.

I once had a manservant who told me on a certain occasion that he "never thought a word about it." I was doubtful whether to class him with such eminent mathematicians as Helmholtz, Kronecker, Stolz, Pringsheim and Schubert, or as a supporter of Max Müller's theory of the identity of thought and language. However since the man was very untruthful, and I have heard that he meant what he said and said what he meant,[53] the conclusion is probably correct that he really believed that the meanings of his words were not the words themselves. Thus I think it most probable that my manservant had been a mathematician but had escaped by the aid of logic.

IS THE MIND IN THE HEAD?

The contrary opinion has been maintained by idealists and a certain election agent with whom I once had to deal,

[51] See Appendix F.

[52] See Appendix G.

[53] The Hatter (see Appendix H) pointed out that there is a difference between these two assertions. Thus he clearly showed that he was a nominalist, and philosophically opposed to the March Hare, who had recommended Alice to say what she meant.

and who remarked that something slipped his mind and then went out of his head altogether. At some period, then, a remembrance was in his head and out of his mind; his mind was not, then, wholly within his head. Also, one is sometimes assured that with certain people "out of sight is out of mind." What is in their minds is therefore in sight, and cannot therefore be inside their heads.

APPENDIX A.

T. L. G., p. 105.

"She's in that state of mind," said the White Queen, "that she wants to deny something—only she doesn't know what to deny."

"A nasty, vicious temper," the White Queen remarked; and then there was an uncomfortable silence for a minute or two.

APPENDIX B.

H. S., p. 3.

"Just the place for a Snark! I have said it twice:
That alone should encourage the crew.
Just the place for a Snark! I have said it thrice:
What I tell you three times is true."

H. S., p. 50.

"'Tis the note of the Jubjub! Keep count, I entreat;
You will find I have told it you twice.
'Tis the song of the Jubjub! The proof is complete,
If only I've stated it thrice."

APPENDIX C.

A. A. W., pp. 104-105.

The Hatter had told of his quarrel with Time, and Time's refusal now to do anything he asked: "....It's always six o'clock now!"

A bright idea came into Alice's head. "Is that the reason so many tea things are put out here?" she asked.

"Yes, that's it," said the Hatter with a sigh: "it's always tea time, and we've no time to wash the things between whiles."

"Then you keep moving round, I suppose?" said Alice.

"Exactly so," said the Hatter: "As the things get used up."

"But what happens when you come to the beginning again?" Alice ventured to ask.

"Suppose we change the subject," the March Hare interrupted yawning. "I'm getting tired of this."

A. A. W., pp 145-146.

"And how many hours a day did you do lessons?" said Alice in a hurry to change the subject.

"Ten hours the first day," said the Mock Turtle, "nine the next and so on."

"What a curious plan!" exclaimed Alice.

"That's the reason they're called lessons," the Gryphon remarked: "because they lessen from day to day."

This was quite a new idea to Alice, and she thought it over a little before she made the next remark. "Then the eleventh day must have been a holiday?"

"Of course it was," said the Mock Turtle.

"And how did you manage on the twelfth?" Alice went on eagerly.

"That's enough about lessons," the Gryphon interrupted in a very decided tone....

APPENDIX D.

A. A. W., p. 99.

"Two days wrong!" sighed the Hatter. "I told you butter wouldn't suit the works!" he added, looking angrily at the March Hare.

"It was the *best* butter," the March Hare meekly replied.

"Yes, but some crumbs must have got in as well," the Hatter grumbled; "you shouldn't have put it in with the breadknife."

The March Hare took the watch and looked at it gloomily: then he dipped it into his cup of tea, and looked at it again: but he could think of nothing better to say than his first remark, "It was the best butter, you know."

APPENDIX E.

A. A. W., pp. 180-187.

...."Consider your verdict," he [the King] said to the jury, in a low trembling voice.

"There's more evidence to come yet, please your Majesty," said the White Rabbit, jumping up in a great hurry: "this paper has just been picked up."

"What's in it?" said the Queen.

"I haven't opened it yet," said the White Rabbit; "but it seems to be a letter written by a prisoner to somebody."

"It must have been that," said the King, "unless it was written to nobody, which isn't usual, you know."

"Who is it directed to?" said one of the jurymen.

"It isn't directed at all," said the White Rabbit, "in fact there's nothing written on the outside." He unfolded the paper as he spoke and added "it isn't a letter, after all: it's a set of verses."

"Are they in the prisoner's handwriting?" asked another of the jurymen.

"No, they're not," said the White Rabbit, "and that's the queerest thing about it." (The jury all looked puzzled.)

"He must have imitated somebody else's hand," said the King. (The jury brightened up again.)

"Please your Majesty," said the Knave, "I didn't write

it, and they can't prove that I did: there's no name signed at the end."

"If you didn't sign it, said the King, that only makes the matter worse. You *must* have meant some mischief, or else you'd have signed your name like an honest man."

There was a general clapping of hands at this: it was the first really clever thing the King had said that day.

"That proves his guilt, of course," said the Queen: "so, off with...."

"It doesn't prove anything of the sort!" said Alice. "Why, you don't even know what they're about!"

"Read them," said the King.

The White Rabbit put on his spectacles. "Where shall I begin, please your Majesty?" he asked.

"Begin at the beginning," the King said very gravely, "and go on till you come to the end: then stop."

There was dead silence in the court, whilst the White Rabbit read out these verses:

"They told me you had been to her,
And mentioned me to him:
She gave me a good character,
But said I could not swim.

"He sent them word I had not gone
(We know it to be true):
If she should push the matter on,
What would become of you?

"I gave her one, they gave him two,
You gave us three or more:
They all returned from him to you,
Though they were mine before.

"If I or she should chance to be
Involved in this affair,
He trusts to you to set them free
Exactly as they were.

"My notion was that you had been
(Before she had this fit)
An obstacle that came between
Him, and ourselves, and it.

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"Don't let him know she liked them best,
For this must ever be
A secret kept from all the rest,
Between yourself and me."

"That's the most important piece of evidence we've heard yet," said the King, rubbing his hands; "so now let the jury—"

"If any one of them can explain it," said Alice (she had grown so large in the last few minutes that she wasn't a bit afraid of interrupting him), "I'll give him sixpence. I don't believe there's an atom of meaning in it."

The jury all wrote down on their slates, "She doesn't believe there's an atom of meaning in it," but none of them attempted to explain the paper.

"If there's no meaning in it," said the King, "that saves a world of trouble, you know, as we needn't try to find any. And yet I don't know," he went on, spreading out the verses on his knees and looking at them with one eye; "I seem to see some meaning in them after all; '*said I could not swim*—'; you can't swim, can you?" he added, turning to the Knave.

The Knave shook his head sadly. "Do I look like it?" he said. (Which he certainly did *not*, being made entirely of cardboard.)

"All right, so far," said the King; and he went on muttering over the verses to himself:

"'*We know it to be true*'—that's the jury, of course—'*If she should push the matter on*'—that must be the Queen—*What would become of you?*' What indeed!—'*I gave him one, they gave him two!*'—why that must be what he did with the tarts, you know—"

"But it goes on, '*They all returned from him to you,*'" said Alice.

"Why, there they are!" said the King, triumphantly pointing to the tarts on the table. "Nothing can be clearer

than that. Then again—*'before she had this fit'*—you never had fits, my dear, I think?" he said to the Queen.

"Never!" said the Queen, furiously, throwing an inkstand at the Lizard as she spoke. (The unfortunate little Bill had left off writing on his slate with one finger, as he found it made no mark; but he now hastily began again, using the ink that was trickling down his face, as long as it lasted.)

"Then the words don't *fit* you," said the King, looking round the court with a smile. There was a dead silence.

"It's a pun!" the King added in an angry tone, and everybody laughed. "Let the jury consider their verdict," the King said, for about the twentieth time that day.

"No, no!" said the Queen. "Sentence first—verdict afterward."

"Stuff and nonsense!" said Alice loudly. "The idea of having the sentence first!"

"Hold your tongue!" said the Queen, turning purple...

APPENDIX F.

A. A. W., p. 56.

[Said the Pigeon to Alice:]...."No, no! You're a serpent; and there's no use denying it. I suppose you'll be telling me next that you never tasted an egg!"

"I *have* tasted eggs, certainly," said Alice, who was a very truthful child; "but little girls eat eggs quite as much as serpents do, you know."

"I don't believe it," said the Pigeon; "but if they do, why then they're a kind of serpent, that's all I can say"

This was such a new idea to Alice, that she was quite silent for a minute or two, which gave the Pigeon the opportunity of adding, "You're looking for eggs, I know *that* well enough; and what does it matter to me whether you're a little girl or a serpent?"

"It matters a good deal to me," said Alice hastily;....

APPENDIX G.

A. A. W., p. 106.

"But why [asked Alice] did they live at the bottom of a well?"

"Take some more tea," the March Hare said to Alice very earnestly.

"I've had nothing yet," Alice replied in an offended tone: "so I can't take more."

"You mean you can't take *less*," said the Hatter: "it's very easy to take *more* than nothing."

APPENDIX H.

A. A. W., p. 98.

"Then you should say what you mean," the March Hare went on.

"I do," Alice hastily replied; "at least—at least I mean what I say—that's the same thing, you know."

"Not the same thing a bit!" said the Hatter. "Why, you might just as well say that 'I see what I eat' is the same thing as 'I eat what I see.'"

"You might just as well say," added the March Hare, "that 'I like what I get' is the same thing as 'I get what I like'!"

"You might just as well say," added the Dormouse, which seemed to be talking in its sleep, "that 'I breathe when I sleep' is the same as 'I sleep when I breathe'!"

"It *is* the same thing with you," said the Hatter, and here the conversation dropped....

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FLEET, ENGLAND.

THE HEBREW TITHE.

PROFESSOR DRIVER in his commentary upon Deuteronomy (p. 172) says that "the data at our disposal do not enable us to write a history of the Hebrew tithe." Conceding this to be true as regards minor details, we may yet believe it possible to indicate the main outlines of the process by which the Pentateuchal prescriptions and more recent Hebrew practice were shaped. It seems probable that we have in them a fusion of many minor ritual or ceremonial offerings and fees, originating in many ways, and known by various corresponding local names; and that the technical term "tithe" comes eventually to have a much wider application than at first, including many types of offering known originally by other names; and that in both its primitive and later use the term never had definite limitation to an exact tenth in significance.

The notion that an exact tenth was always implied underlies many earnest exhortations to greater liberality that are now current in religious literature. Serious minded persons will approve the appeals; students of history and sociology will consider them weakened by violent and needless assumptions of an inspired or divinely prescribed origin of a systematic devotion of one tenth to sacred purposes, and of the existence of such a system from the beginning of human history.

Some recent books upon this hackneyed theme collect a quantity of useful material that is uncritically dealt with.

The writers have wrought under the influence of a theory that takes for granted everything that is really to be proved. Instances of the use of the word "tenth" in connection with religious offerings are gathered from the literature of various ancient peoples, and it is immediately inferred that "the universality of the practice points to a time when the ancestors of all nations lived together and so derived the knowledge from a common source."[1] No attempt is made to examine the history of each nation, to know if the "tithe" was a feature of its whole history, or if it belongs only to a later period. It is assumed that "nearness to Eden and the Dispersion had left in their minds a deep sense of obligation to the true God."[2] Masses of citations from the Talmud, and from early Christian fathers, are all to no purpose, as neither the citations nor those who cite them examine fundamental questions. The labored efforts of rabbinical and Christian expositors to harmonize and expand prescriptions gathered from the Old Testament show only too clearly the unhistorical methods and presuppositions with which they work. Like some fervent and hasty modern writers, they assumed that all the fragmentary legislation and institutions they considered were synchronous, primitive and in force throughout all the land of Israel. There seems no thought of possibly varying customs in different epochs or in different parts of the country; nor any recognition of the possibility of the existence of various unrelated methods of maintaining religious institutions, alike among Israelites and Gentiles.

The first question that is raised by such studies is, What is the actual significance of certain idioms of speech? No matter how often we may find words from a root implying "ten," in connection with the support of religious institutions; is such technical terminology to be construed liter-

[1] Lansdell, *The Tithe in Scripture*, p. 18; cf. *The Sacred Tenth*, Vol. I.
[2] Babbs, *The Law of the Tithe*, p. 16.

ally, or is such construction contrary to the idiomatic usage of the language in which the expressions occur? We are familiar with the fact that some specific numbers in Hebrew, like seven, forty, twelve, one hundred, one thousand, may be used as general terms instead of in precise or literal signification. How far does such usage of definite numbers extend? How much arithmetical knowledge belongs to a primitive people?

Palgrave tells us[3] that the simplest computation in addition of cash, etc., involves an immense difficulty for the Beduin. A council of the wisest heads in the tribe labors with the Herculean task, and the computation may be repeated a dozen times, ere they are sure whether it is 20 or 30 piasters the sheikh has in his hand. "Even among villagers in Nedjed computation in an artificial medium surpasses the ordinary range of human faculties."[4]

Dr. Peters, in his work at Nippur, found the local Arab sheikh demanding employment for fifty of his tribesmen; that number was necessary to avoid jealousy since there were five sheikhs in the tribe, and ten men must be employed from each. He could not understand that thirty was as capable of equal division by five as fifty. His primitive faculties could count only by tens.[5] We thus face at once the difficulty of finding anything definite about any expression whatever based upon a decimal system of notation. Primitive people who have learned to count as far as their fingers will carry them, may eventually get hold of "one finger" or "tenth," as their smallest convenient fraction, so that the expression "tithe," or "tenth," may mean only fraction, portion, percentage. An illustration of such uncertainty may be cited here from the Old Testament. The champions of a divinely ordained literal tenth frequently cite Abraham as paying "tithes" of the spoils of war (Gen.

[3] *Central and Eastern Arabia*, p. 21.
[4] *Ibid.*, p. 369.
[5] *Nippur*, I, 245.

xiv. 20). But in the prescription for a percentage of spoils in Num. xxxi, the "tithe" proves to be one five hundredth part from some people, one fiftieth from others. The theory of an equal percentage from all persons and of all booty is clearly founded upon ignorance.

We may compare with the above limitations of Beduin mental arithmetic the following from central Africa. Declé found that some native tribes about Lake Tanganyika had numerals up to 7; then 8 was 7 + 1. By use of their fingers, they could recognize the number ten, but they had no word for it; as for multiples of ten, they had to begin all over again, counting out a new ten, and having no names for such multiples.[6]

Still more limited is the Bushman's vocabulary. Thompson[7] reports that he has words for 1, 2, and 3. He can count up to ten by adding twos and ones; thus four is two-two; five is two-two-one; six is two-two-two, and so on. He seems incapable of the mental feat of adding three at a time. It goes without saying that for such a stage of culture the idea of "a tenth" is impossible.

A. H. Savage Landor[8] finds that the modern Abyssinian, despite boasts of traditional descent from the all-wise Solomon, has very elementary knowledge of numbers. The customs officials at Baltehi could not sum up beyond ten, failing after repeated efforts. Nor were they better acquainted with writing materials than their Beduin kinsmen of Arabia. Of the Nilotic and Bantu tribes, he tells us that few Africans can count accurately beyond five. Among the Shiluk, six = "the hand and one"; seven is "the hand and two," and so on.[9]

The Bauda spoke to him of an event as occurring "two handfuls" (= ten seasons) ago.[10] Numerical inquiries

[6] *Three Years in Savage Africa*, 299-300.
[7] *Travels*, p. 238.
[8] *Across Widest Africa*, I, 64-65.
[9] *Op. cit.*, I, 311.
[10] *Op. cit.*, II, 43.

would be answered by holding up one finger, two, or three as the case might be. Any fraction for such a people would be a poser.[11] The Asandeh can go farther: "six" is "give one from the other hand"; then "eleven" is "give one from the ground"; and sixteen is "give one from the other side," or foot; and twenty is "a man"; forty-three is "two men and three fingers." Thus, with names for the first five numerals, the divinely ordained decimal notation, or abacus of the fingers and toes, becomes serviceable.[12] And again we may recognize that "a finger" or one-fifth of a "hand" would be intelligible to such a people; but one-fifth of a "finger" would not be. Given a group of units, and they could set aside one out of each ten, if necessary; but they could not calculate a tenth of any unit.

Just this stage of culture must be reflected in the Talmudic sections on tithing,[13] where any one purchasing a number of figs in the market may not eat them without tithing: but that any one who has paid his penny may be allowed then to select his figs one by one without tithing. Similarly a man working among his olive trees may eat olives all day one by one, without tithing, but he must tithe if he collect a quantity of olives at a time. The like rule applies to a workman engaged in weeding onions, or to one gathering figs, whether the tree be in the courtyard or in the garden.[14] The fact that such prescriptions survive in late Talmudic literature testifies to the tenacity of ancient customs, and probably also to a general popular crudity or incapacity for arithmetical computation in later Jewish times, as well as in early Hebrew days.

The same incapacity for dealing with a fraction appears in Arab estimates of time. Thus Captain Stigand tells us that any fraction of a year is counted as a whole one amongst East African and Suahili tribes. A year and a

[11] *Op. cit.*, I, 223.
[12] *Op. cit.*, I, 395-6.
[13] Mishna, VII, Chap. II, 4-8.
[14] Mishna, VII, Chap. III, 1, 3, 7-10.

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month will be reported as "two years": a month and a day is "two months." There is a general incapacity for precise fractional computations.[15]

It is clear that the two fractions ⅕ and ⅒ which occur so often in ancient prescriptions arise from counting upon the fingers of one or both hands. We may conjecture that ⅙, which we find occasionally, is originally one day in each working week, or quarter of the moon. In the Nippur exploration Dr. Peters reports that the Beduin chief who furnished workmen for the excavation claimed as his portion one-sixth of all wages gained by his tribesmen: and his sixth was always claimed upon the basis of a week's full work, whether the tribesmen had full time or not.[16] There does not seem to be any notion of oppression. The old chieftain could count one day in six, but he could not calculate the sixth part of a lesser period. This same limitation in computing powers is sometimes reported from the illiterate of our own land. A negro tenant has been known to rent land, agreeing upon one-fourth of the crop as the rent. In the fall, when no corn was brought in, the owner of the land inquired into the matter and was told, "Dere wuzn't but jes my three loads made." Had there been a fourth load of corn at gathering time, the negro would have had no difficulty in computing and delivering the proper rent.

With the Arab incapacity for fractions of time, we may compare what O'Donovan has told us of the Turcoman nomads.[17] Their notion of time is vague, beyond twelve months; they cannot tell accurately whether a thing happened 8, 12, or 20 years before or after a given great event. Some notable event is made a basis for small computations of time, just as we find illiterate people doing in America. They have a cycle of 12 years, each having an animal

[15] *The Land of Zinj*, 112.
[16] *Nippur*, II, 71.
[17] *The New Oasis*, II, 92, 97.

name, for calendar purposes, but it has no value for the masses who do not write. In a certain town, only one could tell the traveler that a certain neighboring town had been destroyed ninety-eight years before; all others reported 500 to 2000 years. Among Somali peoples Stigand was told by an aged Reshiat that their last fight with the Turkana was 140 years before, when the narrator was no longer young, but not quite so old as now.[18]

With this incapacity of primitive peoples to deal in fractions and the vague generality expressed by the term "tenth," we may compare the purely nominal character of a census and of social organization expressed in tens. The "tithingman" is a familiar figure in English and in early American colonial life, but he had nothing to do with the collecting of dues of any kind. He was merely the responsible head of a theoretical group of ten—the equivalent of the "captain of ten" of Hebrew literature. A similar figure in ancient Italy was called the decennary—or "captain of ten," and centurion or "captain of a hundred" meant a definite rank or social status quite as much as the headship of a specific company of men. The early Saxon called a town or township a hundred, and had a captain of it. Ancient Peru had the same convenient social organization. The decennary or "captain of ten" was responsible for the protection, rights, and behavior of a given group of Indian peasantry. If they failed in any respect, he suffered the corresponding penalty. The numerical method of ranking included captains of fifties, hundreds, five hundreds, thousands, tens of thousands.[19] A like social organization or nomenclature is found among Turcoman tribes. Kokand with its 60,000 people is under a *kurbashi,* or "mayor"; then come four *aksakals,* then 96 *allik-bashis* or "captains

[18] *To Abyssinia Through an Unknown Land,* p. 223.
[19] Prescott, *Conquest of Peru,* I, 42-3.

of 50."[20] In the congested city the captain of 50 is really responsible for several hundred men. In contrast we may notice the *onbashi,* or "captain of a hundred" whom Peters styles "corporal," he being next above the private in military parlance.[21] This captain of a hundred pays $14.00 to secure promotion to the next rank, which we would call "sergeant." Such conventional titular dignities may easily mislead a stranger. The relative rank of various petty sheikhs is expressed by exaggerating the numerical strength of their following. A very slight increase in self-esteem with the aid of a few shekels might advance some Hebrew "captain of ten" to be a "captain of a hundred." A comfortable room for Elisha would easily have advanced the "great woman" of Shunem to dignity at court or in the social circle of the "captain of the host." There is really nothing of actual numerical strength or systematic organization described as coming from the nomad chief Jethro, in Exodus xviii. 21-22, or suggested by Saul in 1 Sam. xxii. 7, or by Samuel in 1 Sam. viii. 12. Nothing is expressed but the relative rank of various petty sheikhs.

This use of numbers to express family or rank has many illustrations in the Old Testament. The word Aleph, "ox," or "thousand," is very common in the sense of family, division, or clan, one of the larger sections of a tribe, as in 1 Sam. xxiii. 23, Micah v. 2, Num. x. 36, Josh. xxii. 14, 21, 30; 1 Chron. xxvii. 1, xxix. 6. Gideon in Judg. vi. 15 says, "My thousand is the feeblest in Israel." Saul, making a like statement in self-depreciation, uses another common word for "family," in 1 Sam. x. 21. So princes of tribes or subdivisions are also called "heads of thousands": Num. i. 4, 16; 1 Chron. xxvii. 1; xxix, 6; compare also 2 Sam. xvii. 4; Num. xxxi. 4; Judg. xx. 10; Num. 7. 36; 1 Kings xix. 18; Ex. xx. 6; Deut. v. 10. The word regu-

[20] Hedin, *Through Asia,* I, 96, 206.
[21] *Nippur,* II, 309.

larly used for 1000 in Hebrew, Arabic, and Syriac means 10,000 in ancient Abyssinian or Ethiopic.

Ancient India shows the same simple method of expressing social rank, and in the institutes of Manu, compiled under Brahmin influence, the higher officials are described as supervising ten, fifty, or a hundred villages, just as in the familiar parable of the pounds in the New Testament faithful service is rewarded with rulership of five or ten cities.[22] Present-day conditions in Arabia are similar, and numerical exactness in such estimates is never attained. The lieutenant or deputy at Kheybar, counting the villages under his supervision, reaches ten by counting on his fingers, and promptly loses himself and gets into the thousands.[23] Assyrian bas-reliefs show us also officials coming before the king, bearing in their hands tiny models of fortified towns, of three, four or more turrets—evidently implying distinctions in rank and responsibility; but the technical nomenclature in connection with these is as yet uncertain. Similarly the prowess of a warrior is expressed in a liberal use of tens. James Morier describes a petty Khan in Persia reporting a skirmish in which his little squad has fled from a small band of Russians: the enemy were asserted to be 50,000 strong, and 10,000 or 15,000 of them were killed. The report is excused by the fact that "these letters must travel a great distance" (and so no strict inquiry will be made) and "it is beneath the dignity of the Shah to kill less than his thousands and tens of thousands."[24] This recalls the feminine strophe and antistrophe

> "Saul hath slain his thousands
> And David his tens of thousands"

which, in Oriental conventions, gave Saul good reason to

[22] *Sacred Books of the East*, XXV, 235.
[23] Doughty, *Arabia Deserta*, II, 134.
[24] *Hajji Baba*, 222.

be suspicious or indignant. It was a grave breach of decorum, to say the least, and David was held responsible for this misconduct of his admirers, and was inferred to be plotting for the throne.

Passing from honorific uses of decimal notation, we may consider the vagueness of efforts to estimate large numbers, all over the east. The "thousands" reported slain in Beduin battles are reduced by critical inquiry to two or three; and these perhaps only wounded, not killed.[25] Barth in his travels in the Sahara was told that a great salt caravan, which citizens traveling made special effort to join for their own safety, consisted of 10,000 camels. On reaching the salt works, he found the "saltpackers" to be only 200. Adding the merchants and the troop of travelers who joined the caravan for the sake of company, the whole company was less than 2000.[26] So, in Arabia, Doughty found 1000 camels to be hardly one-tenth of that number,[27] and a booty of 13,000 camels he finds to be about 130.[28] It is fair to make a like reduction in the herds attributed to Job. "Sheep without number" as an idiom only expresses the herdsman's inability to count; equally meaningless comparisons are to the stars of the heavens, or the sands of the sea. A troop of 2100 horses Doughty finds to be about 210. All estimates of village or clan population he found usually multiplied by ten: on the other hand the fighting strength of a Beduin tribe is regularly counted as one-tenth of the whole.[29] Opponents are dealt with as liberally. The Aneyza are assailed by "1000" lances and lose "200" men—subject to ninety percent discount.[30] The sheikh Zamil musters his forces for a fray; he writes "600 camels"; the forces of his allies number "300 camels (carrying two men each) and 200 led horses."

[25] Palgrave, *Op. cit.*, 23.
[26] Barth, *Travels* (Am. edition), pp. 114, 127.
[27] *Op. cit.*, II, 400.
[28] *Ibid.*, 427.
[29] Palgrave, *Op. cit.*, 299.
[30] Doughty, II, 43.

Zamil sets out next day with "more than 1000" of the town, which Doughty says might have been 200 men. The sheikh called for twice what he had expected to get and the public reported his demand to be twice as large as it was. So a Turkish expedition against the restless town of Jowf was reported by scouts to be "40,000 men, their companies without number." A member of the expedition told Doughty their actual force was 70 irregular soldiery, with a troop of armed servants.[31]

Similarly Heḍin reports a curious Chinese habit of reporting each item in the equipment of a soldier as another man; his gun, his horses, his shoes, his sword, his breeches are each so many "men."[32] Stigand in East Africa asks one of his men how many camels are in an approaching herd. "300,000." Stigand replies, "Not over 3000," and begins counting; he finds not over 1500. The man then saves the face of his estimate explaining that he counted head, hump and tail as three separate animals.[33]

In connection with this vague and meaningless use of tens in daily speech may be noted another favorite idiom for "several": viz., 300 or 360. Strabo tells us that an ancient Arabic poem celebrates "360" uses for the date-palm. Palgrave is told that the hot springs in the province of Hasa number "300."[34] The Arabs claim 300 prophets in their traditional past; there were 360 images in the ancient Kaaba, or one for every day in the Moslem year; the wise Orientalist will construe this liberally, if he allow one for every day in the month. Ward when entertained at the guest house of the village of Hashm, in Lower Babylonia, was told by the simple host that the day before he had entertained 300 horsemen—exciting astonishment and skepticism in his auditor.[35] In the Old Testament we may

[31] *Op. cit.*, II, 34, 443.
[32] *Through Asia*, I, 275.
[33] *To Abyssinia Through an Unknown Land*, 101.
[34] *Op. cit.*, p. 366.
[35] Peters, *Nippur*, I, 331.

compare Samson's 300 foxes (Judg. xv. 4); Gideon's 300 men (Judg. vii. 6), as well as the earlier thousands; Solomon's 300 concubines, (1 Kings xi. 3); and the "spear of 300 shekels" (1 Sam. xxi. 16) as illustrations of the like idiom. As for military reckonings in the Old Testament we may analyze a single one: the statement that 600,000 fighting men on foot went up from Egypt in the Exodus. Western enumerators would at once pronounce the total people to be about 3,000,000; the Beduin would see 6,000,000 as only one-tenth of a tribe are counted as bearing arms. Take the smaller figure, and consider a nomad people on the march, with flocks, herds, tents, etc. Lady Blunt[86] gives some careful estimates of the numerical strength of such tribes. The Roala encampment, for illustration, she finds to number 12,000 tents, or about 50,000 persons, and to extend for ten miles in each direction. 3,000,000 nomads similarly moving would cover 40 × 150 miles—or a strip of country, forty miles wide, from the traditional passage of the Red Sea to Mount Sinai. Passing by the amusing claim that this host passed the Red Sea in a few hours in the night, we may note the story that it is thrown into a panic by "600" Egyptian horsemen or charioteers. The whole narrative parallels the Egyptian conventional portrayal on bas reliefs of Pharaohs of gigantic size opposed by pigmies.

The data cited are illuminating as to the value of numerical expressions in general throughout the Old Testament. We should next examine the current usages of the Orient with regard to the payment of fees, taxes, imposts, religious dues; and the technical terms applied to the payments. We find at the outset that travelers in the East often speak of the payment of "tithes"; but this general use of the term is often cited erroneously by those who cling to the theory of an exact tenth. No Oriental scholar

[86] *Beduin Tribes of the Euphrates*, 344, 379, 382.

would imagine that the travelers referred to expected to be so understood. "The payment of tithes" is one of the religious duties inculcated by Islam, but in none of the prescriptions of Mohammed is a tenth the requirement. The usual term in use throughout Arabia is *zika, zakat,* which Mohammed fixed at one fortieth of all that a man had in his possession for one year. Doughty found that the emir Zamil exacted one in forty of certain kinds of corn, one in twenty of others, and 7½% of dates, while houses, shops and cattle were untaxed. Rich foreign merchants paid for trading privileges $10 per annum.[37] There was no notion of taxation of merchandise, nor of *ad valorem* duties upon imports.

The following elementary distinctions are to be carefully noted. The dominant fact about regular percentages is their connection with tillable soil. The primitive notion was never that of taxing all kinds of property, and the social system that grew up under the necessity of paying dues to the local *weli, ba'al,* or patron ancestor was one that laid all regular burdens upon the peasant or fellah. A powerful and wealthy class developed, owing nothing to the divine owner of the soil on which a house stood, after the initial foundation sacrifice, while new imposts fell upon the fellah, with each new breaking of the ground. Thus the houses, stores, shops and palaces of the city dweller represented untaxed, untithed property, and the feeling of hatred of the townsman as an oppressor of the peasantry was inevitable. Theorists who have tried to find in Joseph a pioneer of the single tax on land fail to understand that the primitive Semite did not place any tax upon land, or own any land upon which to pay tax. He paid the god, *ba'al, weli* or ancestor who was the theoretical owner, a portion of the fruits he gained by tillage. For mere permission to reside he paid nothing; he might

[37] *Op. cit.,* II, 433-4

even be dependent upon the *ba'al*'s bounty, as a beggar or poor man, or he might act as custodian and eat a share of the offering to the *ba'al*.

Doughty found Boreyda claiming overlordship of the neighboring villages of Helalieh and Bukeriyeh. The tax exacted was 5%—one in twenty—upon their annual crops.[38] Cattle, houses, town property generally, went untaxed. At Kheybar the local representative of the Turkish government was compelling the villagers to furnish firewood for his soldiery. Complaint of this as an unprecedented demand evoked the threat to seize one field in eight of their tobacco, previously untaxed. Nomads had been bringing in little cheeses to sell, but his announcement that he would have one in eight as government dues at once stopped the trade. It had not been the way of the fathers to pay dues upon them.[39] The ancient system of taxing food products, while bearing heavily on all the poor, finds it difficult to make room for a new article of food; modern vegetables would be hard to tax. The Pharisee who was willing to pay upon mint and anise and cummin was going beyond what a modern Beduin would do, but it may be doubted if he would pay anything upon his own elegant town house, while foreclosing a mortgage upon some peasant widow who had borrowed a few shekels to meet the oppressive exactions upon her scanty crop.

Palgrave[40] found that the Wahaby government (the equivalent of Pharisaism or Puritanism in modern Islam) exacted from Boreyda as religious dues one-tenth of the produce of land, while a jehad, or holy war, might call for as much as one-third. On pasture cattle the tax was one-twentieth, with a special tax on meat. On money, a tax of one-fortieth was made. On merchandise an impost of four shillings was made for each camel-load, while there were no *ad valorem* duties nor taxes on real estate, shops,

[38] *Op. cit.*, II, 414. [39] *Op. cit.*, II, 132, 208. [40] *Op. cit.*, 187-188.

etc. Officials exacted personal fees or presents at every turn. Burckhardt found that the Wahaby chieftain also claimed one-fifth of all booty captured from heretics.[41]

In modern Syria and Palestine Dr. Bliss reports that the *zakat* will approximate 2½% of the total income. Ten per cent is collected upon fruits of the land. No impost is made upon less than five camels, thirty cattle, and forty sheep. There is no tax upon house, furniture, clothing or servants.[42] In Abyssinia the tax again is on produce of the land; private landowners theoretically pay ⅒ of the crop or increase to the headman of the village who is directly responsible to the emperor for the taxes. The rent upon church lands is paid directly to the clergy; priests take their stand upon stone perches in the market places on market days, and collect dues in kind from their respective parishioners, as sales are made. Such tenants of royal or church lands are to all intents private owners, so long as dues are paid, but a deed of sale requires imperial sanction.[43] But the "tenth" reported by these observers may be anything at all —exactions being so oppressive as to depopulate some districts, according to Parkyns. Moreover, alongside the exactions of corn, another older form exists, namely the maintenance of the chief or headman of a village, or of a local priest, by tilling his land for him. This system is still common in many lands, where the exactions of an outside authority have not destroyed the early village commune.[44]

In Algeria the nominal claim of the government, civil or ecclesiastical, was one-tenth. The technical term *ashur* or "tenth" was applied to the tax on grain only; the term *zakat,* familiar in Arabia and Palestine as a general term, was here limited to the tax on flocks, and was one in a hun-

[41] *Bedouins and Wahabys,* II, 157.
[42] *Religions of Modern Syria and Palestine,* 216.
[43] Skinner, *Abyssinia,* 148-9; Hayes, *The Sources of the Blue Nile,* 163.
[44] Parkyns, *Life in Abyssinia,* II, 190ff.

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dred on sheep, one in thirty on oxen, one in forty on camels. And the amount of *ashur* was not a literal "tenth" of grain, but was one measure of wheat and one of barley from each *zwija* of land (17 to 25 acres) or petty peasant farm.[45] It is readily recognizable that the "tithe" in this primitive region, unexposed to foreign influences that have swept over Palestine, shrinks to the size of a modest first fruits offering. There is no tax on houses, servants, merchandise, untilled land.

In Upper Egypt and the Soudan we again find *usr* or "tenth" applied to the tax on grain. The Mahdi also exacted a "tenth" on all goods imported from the Soudan. This might be collected more than once on the road, and again at the Mahdi's treasury. He also exacted "for the poor," *fitra* or *zika*—which amounted to 2½% of all booty captured in war, and of all confiscated property.[46] Again there was no tax on house, land or city real estate, etc., and no system had been wrought out by the Mahdi to regulate revenues and expenditures. The *zika* of one in forty is the old familiar institution of Mohammed's time.

Barth found at Guré, on the Sahara border, *ashur* levied on all grain raised while the development of mercantile life had produced a poll tax of 20 cents per annum, and 20 cents on each pack-ox and 40 cents on each slave—like the shekel and half shekel yearly in some Old Testament passages. Further south, he found the Sultan of Kano collected $1.00 from each head of a family as "ground rent,"—or in another province 20 cents per "hoe," the average hoe tilling enough ground to feed four or five men a year. Dyeing being a prominent industry, a tax of 28 cents per annum was levied upon each dye pot in town, 20 cents upon every slave sold; 24 cents upon each palm tree; small taxes upon all vegetables sold in the market, none on meat or

[45] Morell, *Algeria*, 322.
[46] Slatin, *Fire and Sword in the Soudan*, 125, 337.

cattle; $4.00 on each camel-load of merchandise imported.[47] Here Islam has left no impress; the institutions of the trading peoples of the Upper Niger seem dominant.

Along the lower Euphrates, Ward reports that the dues expected from the Arab peasant are one-fifth of the crop, instead of one-tenth; and as the collectors insist upon "guessing" at the harvest instead of coming to see it, the theoretical fifth sometimes actually takes the whole crop, or lands the peasant in jail for refusal to pay.[48] We certainly have survival here of a rate of 20% and 25% interest, penalty, or rent familiar in the cuneiform literature; and a side light upon royal precautions in fixing the market price of corn, and caring "lest the strong should oppress the weak." Further north, on land owned by the government, the peasant is taxed 50%, which may represent tax plus rent, or water rate, as the government may ruin the peasant by shutting off his water supply.[49] The persistence of the rate of one-fifth in Babylonia may be compared with the claim in Lower Egypt that one-fifth of all the land is the Khedive's. Compare the scheme attributed to Joseph in Gen. xlvii. 24.

The regularity of a tax upon grain, with varying practice regarding certain fruits and vegetables, points to the greater antiquity of the former. The connection of the tithe with a primitive chthonic divinity or patron saint would explain why no tax or tithe is exacted from the holder of untilled land. The propitiation of the divinity for venturing to tear up his land with tools is found in most primitive peoples. The older pastoral portions of the Vedas strongly condemn those who "tear the earth with the iron plough." Tithing the crops is not a primitive custom in India, as some theorists have claimed. The older pastoral stage is familiar to every student of its ancient literature.

[47] Barth, *Travels*, 160, 116, 334.
[48] Peters, *Nippur*, I, 232.
[49] *Ibid.*, 274, 329.

In the Mishna are probably survivals of the conception of dues or offerings to a local genius of the land. Thus figs offered to one in a public place are not subject to tithe, but an owner of figs, seated at home, must pay tithe on what he himself has gathered to eat. Hawkers or merchants may eat of their figs on the high road but must pay tithe if they stop with them anywhere for the night. This may be parallel to the introduction fees familiar at crossing a frontier into alien territory. The buyer of imported corn is desirous of knowing if it has paid tithe; if not, he himself pays on what he buys. Again fruits growing in a courtyard instead of a garden may be eaten without tithing, but if the tree stand in a garden, one must tithe, though he gather his supply from branches hanging over in the courtyard. Trees on the borders of the Holy Land are scrutinized in like manner. One must tithe if the trunk of the tree stands on the Holy Land, even though he pluck from branches hanging over the frontier. In Jerusalem and the cities of refuge the problem of tithing such trees is to be determined by the direction of the branches. If you drink wine, leaning over the wine press, no tithe is due, as you do not remove the wine from its place before drinking, or if you gather fruit to store or bury in the field, you do not tithe. If you bury figs in the ground to eat on the Sabbath, you cannot take them out of the ground without tithing them. If you pull radishes or turnips out of the ground to transplant, you must tithe them. Fruits placed in court yards, or watchtowers, sheds, and summer-houses, are not subject to tithe—probably because they are not in contact with *ba'al* land. In case of the "second tithe" as it is called (Deut. xiv. 22-27) the money for which it is sold may not purchase slaves, servants, lands, or unclean animals—pointing again to the exemption of these, as in modern Arabia, from any tithe. Hog raising would evidently be a profitable, duty-free occupation; modern sticklers for

a "Mosaic tenth" would do well to consider it. One may purchase with the tithe money a clean wild animal for his banquet; but he does not tithe its skin—which only means that from time immemorial it had not been customary to do so.

Thus the data from Semitic lands show that an effort to estimate offerings to a god in tenths comes with the attainment of settled agricultural life. Not earlier than mercantile and agricultural life could there be a system of weights and measures. Writing is scarcely earlier than the necessity of keeping some business accounts. Pastoral peoples to-day are still illiterate: "We are the Beduw, we do not read," would be said to Doughty when he exhibited his credentials.[50] No exact arithmetic belongs to this stage of culture in any land. No hunting and fishing people have ever thought of giving "one-tenth" of any animal to a superior or to a divinity. Such expressions are unknown to them. They give instead, choice cuts: the head, the right shoulder, a haunch, breast, kidneys and liver, the feet, tongue or fat. And these customs survive when domestic animals take the place of wild game, so that the Old Testament itself never suggests a "tenth" of an animal slain for food, but some conventional choice piece. In Eli's time there was not even this rule at Shiloh: but the seer or priest took "potluck," contenting himself with anything his forks fished up (1 Sam. ii. 13ff). The estimation by tenths comes only when daily life is dealing with articles in bulk or large quantity. And as regards grain offerings, we can hardly conceive of anything but the primitive first fruits or harvest offerings, so long as we deal with the period of communal stores, or with individual small crops not yet an article of extensive commerce.

In early China this fact is of ancient record. In the *Sacred Books of the East* (XXX, 70, 73) reference is made

[50] *Op. cit.*, II, 289.

to the tenth of the produce of the land devoted to the worship of the ancestors. We also find corners of the field left unreaped for the poor, and gleaners follow after the reapers, just as in ancient Palestine. But this only makes the sociologist suspect a period of transition from communal stores and public lands to individual tenure. And this is corroborated by the ancient Chinese literature itself. In the Liki[51] we read that in earlier days there was no taxing or tithing of grain, but the public fields of headmen or sanctuaries were cultivated by the adjacent villagers, each of whom had to give three days labor each year. In those days also there was no shifting of homes or sale of house and land. No elegant sacrificial robes were necessary for festal days, when first fruits were offered to the patron ancestors. In later times, with the development of silk culture, a tithe of the cocoons was set aside at harvest time to make the sacrificial robes of silk.

In Hindu sacred literature the same social transitions appear with corresponding changes in ritual and fees. In Manu which is very late, royal exigency is the measure of exactions. The king takes ⅙₀ of the increase of cattle and gold; one-sixth, one-eighth, one-twelfth of the crops, of skins and of earthenware. Of labor, he may exact one day in the month. In another section he takes one-twentieth of cattle and gold, one-eighth of crops, or in time of distress, one-fourth.[52] No rigid rate appears in any of the petty Indian states; as we might have expected.

Seeing the probable origin of the "tithe," its rigid connection with grain and agriculture, we may ask how the technical term *zika, zakat,* comes to be applied to it, and to other offerings in modern Arabia and Palestine. This word means "purity, purification." Prof. E. H. Palmer defines it as a sort of poor rate amounting to ¼₀ of all the property which a man has had in his possession for a full

[51] *S. B. E.*, 227-8, 271.

[52] *S. B. E.*, XXV, 236-7, 428-9.

year, but in Mohammed's time it was a contribution to the expenses of a war against infidels.[53] Dr. Bliss thinks the general term *zakat,* purification, as applied to all kinds of "alms" etc., in Palestine must refer to the subjective blessing of giving, and to the sanctification of the remainder to a proprietor after alms is deducted.[54] I am not able to accept this. Primitive rituals aim to deal with objective facts rather than with subjective states. The name suggests the survival of a fee paid for cleansing from some form of defilement. With Professor Palmer's statement of the purpose of the one in forty *zakat* in Mohammed's time, we may compare the fact that with the Mahdi it was the same per cent of all the booty captured in war. On the Algerian frontier it was once the technical term for tax upon flocks, as already cited: 1% on sheep, 1 in 30 on oxen, 1 in 40 on camels. In modern Arabia the Beduw will pay no "tax" but will grudgingly pay the religious *zika* to some powerful lord or local government, and this *zika* is usually 1% of their flocks, as formerly in Algeria.[55] Note that the *zakat* on flocks and herds in Palestine has also been shown to be usually one in 30 or 40. We may then find some reason to believe that the "purification" was originally the familiar and universal purification from war or defilement by dead bodies in time of war, practised by savage and semi-savage tribes in all parts of the world. Changes in religion make ancient rituals obsolete; the fees paid remain. We have an illustrative example in 2 Maccabees xii. 38-43. When his soldiers have touched the dead bodies of idolaters Judas does not have them individually undergo the ceremony for cleansing from defilement. Instead, he collects the proper fee from each man and sends the whole sum, two thousand drachmas, to Jerusalem to have a cleansing

[53] *S. B. E.,* VI, XXIII.
[54] *Religions of Modern Syria and Palestine,* 215-216.
[55] Doughty, *Op. cit.,* I, 455.

ritual there. His army is content to be purified by "absent treatment." This marks an advance upon the procedure described in Num. xxxi, just as the latter is later than the individual ritual prescribed in Num. xix. We may also consider the curious emphasis in Tobit upon the idea that "alms deliver from death, and cleanseth away all sin."[56] Compare the statement in Ecclesiasticus that he who gives alms offers a sacrifice (2 Eccles. xxxv. 2). It is clear that in a strange land, where the songs of Yahveh could not be sung and priestly ceremonies were seldom available, the pious Jew is contenting himself with the payment of fees for the service he cannot procure. The process recalls a tale familiar in American frontier life of three men in great peril; each urges the others to pray or sing a psalm but none of them can. "Well then, let's take up a collection!"

The payment of a fee becoming equivalent to the actual cleansing rite, it is easy to see that the presence of an idolater in the land may be tolerated if he will pay the necessary fees for the cleansing of the land from defilement; hence the war cry, "the Koran, tribute, or the sword!" The Beduw so understand the exaction of *zika*: "If we do not pay it they call us *mushrakin* (idolators)."[57] Pay the ceremonial fees, and you are assured of ceremonial benefits.

We have seen the impossibility of deriving a *zakat* or "purification" tax upon herds of cattle, from the offering of choice cuts of a slain animal to a divinity. As we have seen that the rate is the same as for booty taken in war, or for the expenses of a proposed holy war, we are warranted in concluding that it had the same origin; and from a period of early protest against offering captured cattle to Yahveh, as in the familiar story of Saul (1 Sam. xv. 15) we pass to a period when this plan is the law, as in Num. xxxi—thence to a period when all well-to-do cattlemen pay

[56] Tobit, IV, 10.

[57] Doughty, I, 455.

the god's proportion, to insure their nonmolestation by rulers or raiders in the name of the god. Compare David's pious blackmail of Nabal. All of this is unrelated to the primitive shepherd's spring sacrifice of the first-born of the season, to insure immunity from spooks and jinns of whimsical temperament, a practice which in some form is known among most pastoral peoples. Of the various elements mingled in modern Jewish and Moslem tithes, the paternity of some is fairly clear; and the two leading terms "tenth" and "purification" have clung with considerable steadiness to the grain offerings and fees with which they were at first associated.

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INTELLECTUAL EVOLUTION AND PRAGMATISM.

THIS essay was suggested by a delayed reading of *Pragmatism* by the late William James. The viewpoint is critical and psycho-analytical. The object is to point out factors of his problem to which Professor James seemed blind and to suggest some of the immediate causes of that blindness. As a result it is hoped that some contribution may be made toward the clarification of our thinking about evolution in the methods of thinking. Thus we also provide a rough scale for the classification of intellectual processes according to their evolutionary rank.

With this conception of mental evolution we can approach a better formulation of the goal toward which we are being impelled quite blindly. By becoming conscious of the evolutionary conditions and tendencies, as these involve intellectual growth, we insure a more perfect adjustment to the laws of our own character-development and accordingly we accelerate the natural growth by eliminating some impediments in the form of infantile emotional aversions.

This may also furnish a clue to a new history of philosophy. Where formerly men have written elaborate histories of the philosophic theories by which persons have explained and justified their temperamental attitudes toward the universe, the future historian of philosophy may devote himself more to a study of the genesis and growth of the temperament itself, which determines our philosophic

creed. That is to say, we are to prepare for a history of philosophy in its subjective aspect. With the statement of this program, which is pretentious as coming from an amateur philosopher, I will proceed with the task.

Professor James divides mankind roughly, and arbitrarily, into "tender-minded" and "tough-minded" groups according to predominant tendencies. Then he gives some characteristics of these groups. The "tender-minded" are intellectualistic, religious, free-willites, monistic and dogmatic, while the "tough-minded" are empiric, irreligious, deterministic, materialistic, sceptical, etc. The underlying causes for this divergence he believed to be temperamental differences. Others who recognize these differences of temperament have used the words introverted and extraverted, which I believe to be more illuminating as descriptive symbols for these characteristics.

TEMPERAMENT AS DETERMINANT.

Professor James assures us that: "Temperaments with their cravings and refusals do determine men's philosophies *and always will.*" This statement is strong and sweeping, including with the present also the infinite future, in its denial of evolutionary change in the relation of philosophy to temperament. Since our philosophies do change it would seem that the determining temperament must be undergoing corresponding changes. But why and how does our temperament change? Unfortunately James did not undertake to define temperament, nor to inform us about its determinants. If he had undertaken this he might have discovered that, instead of being the fundamental determinant of our philosophies, "temperament" is a mere symptom which reveals the degree of development which we have attained in our attitude toward, and assimilation of, experience in relation with objectives; and that "temperament" is but a collective name for reactions which

usually we do not understand, while our attitude toward relations with objectives is the real determinant of our philosophies. However James did not so conceive it.

I believe it evident from James's exclusion of relations with objectives, as a determinant of temperament, that he must have thought of temperament, if at all, as only a vague feeling-predisposition toward particular academic solutions of human problems, without duly searching for the determinants of these feeling-predispositions.

His statement that "temperaments" (in the above sense) "always will" control our philosophies, I believe to be autobiographical of James's most fundamental feeling-attitude of indifference or aversion to the check and justification of experience in relation with objectives. This conviction is confirmed by his endorsement of this quotation from Chesterton: "The question is not whether the theory of the cosmos affects matters, but whether, in the long view, anything else affects them." Here he comes perilously near to that idealist monism "that makes our universe by thinking it."

But in spite of his evident longing to remain consistent with these positions James is unable to do so. If temperaments do "and always will" determine men's philosophies, then, of course, it is absurdly futile to try to correct or otherwise interfere with the temperamental processes, except to secure a developmental change in temperament itself. Notwithstanding James's reluctance to accept the corrective of experience with objectives, these incorrigible and unavoidable relations have so far forced themselves into his consciousness that he is compelled to seek a compromise between these intruding objectives and his aversion to them, which, of course, resulted in a contradiction.

Although temperaments do "and always will" determine men's philosophies, yet James assures us, again speaking autobiographically, that "of whatever temperament a

professional philosopher is, he tries, when philosophizing, to sink the fact of his temperament." Why should any one make the least useless effort to overcome the unavoidable temperamental determination of his philosophy? Manifestly in James the explanation is his unwillingness to face his problem with objective realities, and so he was impelled to seek a compromise and was contented with mere verbalisms, which seem plausible only so long as considered disassociated from the real issues of his problem.

JAMES'S PROBLEM SUBJECTIVE.

Here we already have a view of James's internal conflict which also prompted the book *Pragmatism*. On the one side is the general primitive and infantile human tendency to ignore the limitations imposed on our impulses by our relation with objectives, whenever the realities interfere with the realization of our desires. On the other side are those experiences, dependent upon our relations with objectives, which ever force themselves upon our consciousness, and enforce the recognition of our limitations, or exact the price of pain for disobedience. It was this internal struggle, to protect the infantile impulses against the interference of the "noise of facts," that James was trying to end. He ended it by an evasion, and to justify that evasion he appropriated pragmatism as the "happy harmonizer."

When James undertook to rationalize his problem he made the very common error of ascribing his subjective conflict over relations with objectives, to a conflict with persons of different temperament. He thought of it as a contention with them over "methods," when all the time his real conflict was only subjective, as between his aversion to "facts" and the necessity of facing the "facts" themselves.

Surely Spencer and Haeckel have no quarrel with the pragmatic test of workability as a method for gauging the

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relative accuracy of our conception of objectives. Indeed, their whole endeavor, as scientists, consisted in marshalling the greatest possible quantity of experiential "facts," in relation to which they applied the test of workability.

Where James would treat some infantile hypothesis as of the same value "so far forth," as an hypothesis checked by Spencer and Haeckel, I would seek an evolutionary standard of rating. This can be done only according to the number, variety and complexity of the conditions under which the pragmatic test is applied. To change the descriptive words and call these conditional truths "the truth so far forth," does not in the least help us toward judging between the relative approximations which our concepts attain as transcripts of reality. Neither does it solve any problem. It is only a begging of the question. However, to see, in their evolutionary rank, the conditions under which the test of workability is to be applied, is some help toward better and more accurate thinking.

CONDITIONS OF TEST OF WORKABILITY.

Professor James could not have mistaken the evasion of his problem for its solution, if his aversion to the check of experience in relation with objectives had not blinded his eyes to the real nature of the conflict between himself and such persons as see the issue either much less or much more clearly than did he.

For James, and all those having a similar internal conflict unaccompanied by any greater clarity of vision as to its essential nature, pragmatism came as a "happy harmonizer," not because it solved their problem but because it seemed to justify its evasion. Now they need not care about the relative accuracy of their concepts, as transcripts of reality, and need not be troubled about entertaining mutually contradictory ideas. For them now every concept

is true and every concept is false "so far forth." Evolution in relative accuracy is ignored.

At the outset, having repudiated evolution in our attitude toward experience in relation with objectives, or repudiated objectives altogether, there can be no varying degrees in the accuracy of our concepts. All controversy, conflict, contradiction concerning our acquaintance with objectives can be henceforth "so far forth" ignored. In such a system there can be "no prejudices," not even against the conclusion derived by consciously excluding a part of the pertinent evidence.

No; the conflict was not, as James conceived it, a conflict over the pragmatic method but a difference in attitude toward the "facts" of our experience in relation with objectives. In other words the essence of the controversy is not one over the pragmatic test of workability as such, but hinges on the conditions under which the test is to be applied; that is, a difference in aversion to or craving for, and in the multiplicity of such, in their application to the test of workability. Of course this evolutionary aspect of our relation with objectives, and objective conditions for the test of workability, can have no existence for those whose intraversion is so obsessing as to inhibit the recognition of any possibility of relations with or the existence of objectives.

Having now pointed out the how and the why of James's failure to see the true factors of his problem, we may proceed to an inquiry as to *what* he failed to see in consequence of his initial shortcoming. James's feeling-aversion to these experiences with objectives, which checked his temperamental predispositions, necessarily made him an inefficient observer of such experiences.

Perhaps there is need for having some statement as to what is meant by an inefficient observer. Superiority as an observer is measured by the relative minuteness and

multiplicity of the relations and aspects in which we discern an observed object. Let us apply this to James's observation of empiricists.

He says: "Never were there so many men of a decidedly empiricist proclivity in existence as there are at the present day." This should have suggested to him that the race may be undergoing an evolutionary change in its attitude toward the "facts" of experience in relation with objectives. It did not suggest this, manifestly because of his introversion, that is, an aversion to many of such "facts" and a consequent aversion to the recognition of empiricist cravings for them as a product of evolution later in the scale of development than was his own.

Notwithstanding this, James crudely saw and pointed out several degrees in empiricist evolution, only he saw those stages as dissociated phenomena and without clarity as to detail and without any evolutionary or causal elements of unification. It is because he did not give adequate attention to detail, nor see these evolutionary relations, nor any other element of unification, that I characterize him as a relatively inefficient observer. Let us now study the determinants of temperament which James overlooked.

TECHNIQUE OF MENTAL GROWTH.

The infant's pain from contact with a hot stove may produce something more than a mere effect. It may register in consciousness, and then synchronously and conjunctively there is registered some imagery of the associated stove. Let us call this association an affect-object. Perhaps later comes some understanding of the behavior which brought the unhappy result and this suggests some idea of causation.

Here the important thing to remember is that the affect-object is the registered, indissoluble entity of consciousness, which now becomes a new and independent determinant,

which modifies every subsequent result arising from new relations, especially those bearing some analogy to the hot stove.

Another illustration. Contemplate the status of a person suffering emotional disturbance because of sexual experience, or craving, with the mental associate of fear. The conflict is one between bodily craving, satisfied or unsatisfied, and a conflicting craving for social approval. Such repressed emotions produce involuntary, defensive or compensatory reaction. Hence such individuals, solely because of these existing affect-objects, react more intensely and differently than a more healthy-minded person. The former, as defenses to the self-accusation of what is called "conscience," must denounce with absurd extravagance all those ideas or acts which are associated with his own fault. The emotionally undisturbed, and so more healthy-minded person, has no similar incentive to intensity of moral judgment. The reason is that the idea, or act under observation, has a different group of associations in his existing affect-objects. Unlike the puritan, he has no unconscious or conscious associated self-accusing shamefulness to over-determine his defensive or compensatory reactions.

Some persons see a growth in the number of objects with which we have experience but fail to see the mechanism of their cohesion within the ego, and so remain unconscious of any evolutionary process in our attitude toward objectives, which attitude, derived from past experiences, might be the determinant of their attitude toward and of their valuation of further experience. In other words, they fail to see that part of the technique of our mental growth in virtue of which past experience in relation with objectives becomes the material for a conscious induction, supervising the experiential materials by which future intellectual growth is best to be achieved.

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This conscious effort and guidance toward future intellectual evolution I conceive to be a late product, a growth to be achieved and desired. This neglected factor of our intellectual evolution I conceive to be a change from relatively great aversion to checks, through compromise, to a growing conscious craving for experience in relation with objectives, as a check and justification to our impulses. Finally we also experience a great craving for the most efficient method of dealing with such experiences, to the end of making our concepts always grow to a relatively closer approximation to a perfect transcript of reality.

ENERGIC MASS AS A DETERMINANT OF TEMPERAMENT.

I can believe that among new-born babes there is some difference in mere energic quantity, conditioned upon prenatal nutrition, etc. Likewise, in each individual the energic quantity available for objective relations is again conditioned upon the individual's size and the changing efficiency with which his system performs its nutritive and scavenger functions.

In infants and adults alike the energic quantity is one determinant of the aggressiveness with which they attack the immediate environment, as well as a determinant of the pleasure-pain results derived therefrom. We have already agreed to call this related existence of ego-energy and objective, producing an affect, the affect-object. This newly established consequence of related existence, this affect-object, brings new conditions into the future reactions of the individual, just as water has reactions of its own, different from those of either oxygen or hydrogen, separately, or in mere mechanical mixture. These affect-objects now are a new determinant of our relative and varying craving or aversion, as to further experience with some or with all objectives. Thus we see that mere difference of energy-mass, by being one determining element of

the character of the earlier affect-object, indirectly and remotely become an important factor in determining whether we shall belong to the introverted or extraverted type.

But this is not the only factor. Immediately after parturition the human element of the infant's environment also begins to play a part. Parental and social demands create artificial lures and restraints, which tend to inhibit or compel a particular choice, and so become a determining factor toward the enlargement of some relations with some objectives and the curtailment of others.

Thus it may occur that an infant with much energy, but reared in a "sheltered" existence, may develop great capacity for explaining and justifying the defective mental products of excessive introverted attention. The resultant and relatively imperfect concepts of reality are projected into the outer world, and become determinants of conduct, in competition with the products of more extraverted attention. Alongside of this, the environment, in relation with the affect-objects already existing, may impose a fearful attitude and aversion to the check and justifications of new experience with objectives. Such persons may retain all through life the infantile dread of shock, the infantile tender-mindedness, that is, relative introversion, and the philosophic predispositions which it determines.

On the other hand, another infant with much less initial energy-mass but with more freedom, or more artificial coercion toward entering into relations with objectives, may develop great ability for comfortable and conscious adjustment with objectives and accordingly it develops a relatively intense craving for experience with objectives. Here then, in spite of relative deficiency of energic mass, the infant develops into the tough-minded, the extraverted type. I think that Herbert Spencer was probably an example of this.

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In these illustrations we see that temperament is our attitude toward experience in relation with objectives, and that both energy-mass and the number and character of the related objectives all become determinants of new affect-objects, which, by coordination with prior affect-objects, make that complex and distinctly individual *psyche*, which manifests itself in those reactions which we call character or temperament, and which differentiates us from our neighbor.

ENERGY-MASS A NEGATIVE FACTOR.

I believe that from these considerations it already appears that energic quantity is chiefly a negative determinant of the character of our affect-objects. By placing limitations upon the possible success in our conflict with objectives, it imposes a negative barrier to our future choice and development, if we endure. Within the possibility of our efficient dealings with objectives, in the first instance our choice is again limited by the content of our most immediate environment. From this unavoidable contact we derive certain results of pleasure or pain, and so are formed the first unconsciously acquired feeling-associations, or emotions; that is, we achieve affect-objects, which by some more or less crude analogy, of the mechanism and influence of which we often and long remain quite unconscious, but which, nevertheless, determine our choice among the possible new relations to objectives. Later we become more or less aware of this mechanism and proceed more consciously to make choice of our relations with new objectives, by a more critical examination of the analogue.

As this evolution progresses we see that the immediate influence of energy-mass is growing relatively less important and more clearly negative, while the remote influences of energic mass assume a positive character as choice determinant only by means of its related existence in acquired

affect-objects. So then, as we develop the more positive characteristics of temperament our determinants are relatively more dependent upon the quantity, variety and assimilation of our prior experience with objectives, that is, dependent upon the multiplicity, variety and complexity of our previously achieved affect-objects, and our consciousness of relative approaches to identity, in the analogies which influence the choosing process.

This is the important matter which escaped the attention of Professor James. It is also the most important and unfortunate characteristic of the infantile aversion to the extraverted type, and the intensity and scope of their aversion are the measure of their relative infantilism.

EVOLUTION A CHANGE IN EMPHASIS.

I believe it desirable to amplify this discussion still further. Manifestly, "temperament" has no meaning as mere static energy. It comes into significant existence only so far as resultant distinguishable activities are manifested. But this means that it has significance and classification only according to the objectives with which the energy has been associated in self-expression, that is, in acquired affect-objects. Manifestly the last of these associates is more controlled by the prior existing affect-objects and relatively less and more indirectly controlled by the mere factor of energic mass. In other words, it is the related objectives, in the affect-objects, which on the positive side determine the differentials of temperament, and evolution is a change in emphasis to the objectively contributed factors of the psychic content.

While varying quantities of energy may determine initial differences and cause a fluctuating development in our attitude toward objectives, I know of no evidence which suggests that any mere experiential relations either directly or immediately produce any change in the very na-

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ture or quality of the energy itself. The only traceable consequence seems to be an increasing consciousness of the behavior of things as they are. The affect-object produced by a particular experience, of course, may have its very existence dependent negatively upon the energy-mass at the time, but positively the results will be determined by the prior affect-objects to which it becomes related.

In the absence of evidence, the natural law of persistence of energy also impels to the conclusion that differences of temperamental manifestations are not explicable on the basis of any modification wrought by experience in the essential nature or quality of the human energy. Therefore differences in the manner of energy expenditure consist only in differences of object to which it attaches itself and in relation with which it reacts. As we increase our experience with objectives, both in number and variety, the positive aggressive factor of selective activity becomes more conspicuous and is seen more clearly to be determined by prior experience with objectives, that is, through the established affect-objects. Again it appears that intellectual evolution is mainly a growth toward greater extraversion, that is, a growing emphasis on and consciousness of the objective factors of our infinitely related existence.

MECHANISMS OF EMPIRIC GROWTH FROM INFANTILISM.

We are lured or repelled, according to an associated feeling-tone derived from some prior experience, which now, because of some more or less remote resemblance between the two objective situations, has become associated with the present reality. As we grow in the consciousness of the mental mechanism through which the past experience controls the present reaction, the more critical do we become as to the relative perfection of the analogy by which we accomplish the transference of the dynamic interest from past experience to the present choice or act.

Moreover, through the growth of such conscious use of critical capacity, there develops a conscious interest toward securing the most perfect analogy as a basis for the more efficient transference of the imperative impulses which determine "temperament" and action. The relatively greater satisfaction, and lessening of disappointments, which is obtainable through this growth toward more carefully and more consciously determined conduct, develops to a craving for increasing experiences with objectives and a more painstaking observation of the behavior in relations with them. This in turn requires, and so induces, the demand for a greater quantity and diversity of experiences and for the better understanding of these, especially in their more remotely related pleasure and pain affects.

All this again means that at this stage we grow away from infantilism, toward relative intellectual maturity, according to our craving for and achievement in the quantity, variety and complexity of our observed experience with objectives; that is, according to the complexity of our affect-objects, and according to the growth of scope, understanding and desire for conscious relations with objectives. I need hardly add that this is also the means and mechanism for becoming conscious of interobjective relations.

In the course of this growth there is an accompanying evolution in our consciousness of the advantages of a larger understanding, for a better adjustment to objectives, which understanding is attainable through the insistence upon a more perfect analogy, before the past experience controls the present action. Just to the extent that we become conscious of the advantages due to such a critical capacity, we also become conscious of its dependence upon the variety of past experiences, efficiently observed. Thus comes the growing craving for greater and ever growing variety of experience with objectives, as the foundation of more crit-

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ical judgments and more perfect guidance in the solution of each successive problem.

Thus in each of us the assimilated and available mental materials, that is, the affect-objects coordinated at each particular moment, will determine our attitude toward possible new experiences with objectives, and determine the result. That control becomes more and more conscious and consciously imperative as we acquire a clearer understanding of its behavior and the advantages and the sources of its power.

TOWARD THE EVOLUTIONARY CLASSIFICATION.

Our capacity for conscious advantageous adjustment to the greater variety and complexity of objective conditions, therefore, is the practical measure of our intellectual development, which is high or low according to our craving for and assimilation of experience in relation with objectives. Therefore the growth of empiric tendency, which James saw, is a later product of evolution, and the intensity, scope and consciousness of its craving are measures of the extent of that evolution.

In other words, those the farthest evolved intellectually will insist upon the most exacting conditions for the application of the pragmatic test of workability. A relative introversion is relative infantilism; relative extraversion is relative intellectual maturity. If we are unconscious of these processes and their results we call them intuition or temperament. If we know them we call it reasoning, that is, more or less consciously supervised induction and deduction.

From this presentation of the psychic mechanism involved in our growth toward the greater objective determinants of our activities it appears that the pleasure-pain motive for action never ceases to operate, nor decreases in influence. The only change which evolution brings about

is in the associated objectives, relation to which gives this pleasure or pain, and, of course, varying degrees of the consciousness of these factors and processes. Our development is remote from the primitive, just to the extent that we consciously seek and succeed in taking account of more remote objects and relations, remote both as to time and space, as the foundation of our present pleasure and pain affects.

Now we come to the formulation of that which James saw partially and crudely as mere unrelated phenomena. I will amplify these factors as I see them, and will arrange them in what to me seems to be their evolutionary order. As we proceed it must be remembered that the aim is to *describe behavior,* not to *define things.* The subtle and ever changing flow of human energy and its associates, which in their related existence constitute the determinants and characteristics of human purposes, do not lend themselves to accurate definition. Consequently human language is here a relatively inefficient tool for expressing such mobile and subtle relationships. It follows that readers will get my meaning only in so far as they ignore the precise and usual meaning of the words I use, in an effort to understand the behavior of the forces I am trying to describe. Perhaps this should have been said before.

Having now noted generally the mechanism involved in intellectual evolution we proceed to a closer observation of the process with a view to discovering at least roughly distinguishable stages in the growth to maturer mental methods.

In the main, the mental mechanism of the sick mind is like that of the healthy mind, with paucity of materials and relative inefficiency of infantile states of development, in the use of available materials for checking the energies toward a comfortable adjustment to the environment. In both, desire creates phantasies of wishes fulfilled. In the

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sick mind a subjective conflict intensifies some desires, as compensation for other losses. The intensification of desire tends to preclude the coordination of the resulting phantasy with those experiences in relation with objectives which are appropriate to the checking and correction of the phantasmal content, so as to make it a relatively closer approximation to a correct transcript of the realities of the individual's situation.

In this condition of sick-mindedness the check of related realities is painful, and the impulse to avoid this pain tends to induce the avoidance of new relations to environment. This limitation of experience and of coordination promotes a relative incapacity for distinguishing between the varying degrees of accuracy, as transcripts of objectives, which may inhere in the phantasy. Accordingly the phantasy bears little resemblance to the objective realities and is workable only under the fewest and most simple conditions for applying a pragmatic test, and yet the phantasy—hallucination—is accepted as a guide to conduct with the same assurance as accompanies the thoughts of another which would withstand all the known checks applicable in a test of workability.

In the absence of a relatively thorough verification of our concepts these probably bear relatively little resemblance to the related objectives. It is this which makes them symptoms of sickness and infantilisms and renders them unsafe as guides for conduct in a relatively complex environment. However, with the relatively few and simple affect-objects to which coordination is permitted they stand the pragmatic test. Thus, the phantasy of the sick mind achieves the importance of an hallucination—is accepted as an accurate duplicate of objective reality, in its control of the conduct of the sick person. In consequence such a one comes to grief by failing to achieve an efficient adjustment to his environment.

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Obviously, in such cases the process of securing relief is first to remove the motives for avoiding relation to objectives, as by inducing some consciousness of the causes of suffering and perhaps some hope of psycho-analysis as a remedy. So the individual is developed to desire submission to the influences of more related objectives, insuring a better social adjustment, by reducing the disparity between the hallucinatory phantasy and the more accurate concept which might result from the check of relatively larger conscious relation to environment.

THE INFANTILE ATTITUDES TOWARD EXPERIENCE.

The infantile attitude toward facts which curb desires, like that of the sick mind, is one of aversion and a consequent tendency to disregard, evade or deny them. For all humans, in so far as they retain the infantile attitude toward objectives, it is true that desire creates the wish-fulfilling thought; thought creates the "facts," and the dogma, with little or no support in experience, is its formal assertion and the attached affect-value impels to corresponding action. This is the psychic mechanism of the unconscious infantile mode of satisfying the inherent lust for power, the craving as if for omnipotence.

In the creation myths we see the universe produced by thinking it. Even the human creative desire and thinking mind is objectivized and becomes the divine creating intelligence. It seems to me this is well portrayed by the Evangelist John, and will be apparent to all who discard the acquired literal significance of words to get an understanding of the feelings and thoughts which prompted their use. Let me thus present the words of John with their determining motive interpolated in brackets.

"In the beginning was the word [formulated desire] and the word [desire] was with God, and the word [desire] was God [the Creator]. The same was in the be-

ginning with God." Thus we see that creative desire beyond human realization is objectivized as God, the Creator. Now we understand in what sense "The Seed is the word [desire] of God," and from the seed of desire all things flow. The word is made flesh. Thus infantile attitudes toward "facts" may be retained alongside a highly developed casuistic ability and so produce those highly ingenious arguments in support of a transcendental idealism.

Some of the Christian Fathers carried this infantile aversion to "facts" to the highest degree of enthusiasm by making it the cardinal virtue of their faith and creed. Some gloried in the faith which enabled them to defy "facts" by the formula, "I believe it because it is impossible." A mystic acquaintance of mine, who conceives himself the subject of divine illumination, says: "The essence of illumination is that it shall transcend and contradict normal experiences." Indeed, how could it exhibit its higher authority if it only confirmed normal experiences?

JAMES'S ATTITUDE TOWARD EXPERIENCE.

Evidently, in spite of a strong disposition toward this idealist monism, James found some facts from which he could not escape and so he resolved to secure his peace by establishing a "cordial relation" with such facts, and he points out that if others can accept pragmatism they likewise can make a virtue of partly escaping and partly accepting a painful necessity. But our relation must not be too cordial with "facts"; not such broad and deep familiarity as would entirely destroy the transcendental mystical monism. Hence his conflicts, compromises and contradictions. His love of facts is not strong enough to enable James eintirely to discard the infantile monism of his egocentric godhood. So he sticks to that and tries to accept some facts as well, and thus he becomes a pluralist and dualist as well as a monist.

This attitude of resignation for the acceptance of inescapable experience in relation with objectives, probably entitles James to enter the second class in our evolutionary scale. In this adolescent stage there is no clear and decisive preponderance of extraverted interest over the earlier introverted attention. For the want of this clear-visioned, conscious preponderance of interest, this is the stage of vacillation, evasion, compromise, confusion and contradiction. We try to hang on to the departing and grasp the coming ideals as well. We are all things to all men, free-will determinist, monistic pluralist, anthropomorphic pantheist, religious atheist, evolutionary absolutist and spiritualistic materialist, with pragmatism as the "happy harmonizer."

Let us have all the hostile facts from which we cannot escape and all the facts which seem to support our infantile, so-called *a priori* principles as well. This appears to be the attitude of James and his class of pragmatists.

The great mass of our "educated" humans probably belong in this early adolescent class as far as concerns the development of their attitude toward experience with objectives. In consequence, philosophically considered, they are as much fish as fowl.

EARLY MANHOOD ATTITUDE TOWARD FACTS.

And yet there is a considerable group of scientists who have grown to the early manhood stage of their development toward "facts." This class in our evolutionary attitude toward objectives and new affect-objects is represented by many of our scientific specialists, in the more exact physical sciences. Here, *at least in their special field of study* and in so far as they have the true scientific spirit and method, there is an aggressive quest for more intimate acquaintance with objective reality, a real craving for all the related experiential "facts," in order that every pre-

disposition and hypothesis may be subjected to the conscious check and justification of the widest possible range of relations with objectives, and the concepts thereby made to approach relatively nearer to an exact transcript of reality.

As the multiplicity of our affect-objects grows and our acquaintance with their interrelations and interdependences approaches a breadth as wide as the objectives themselves, we become more and more determined to ignore the infantile feeling-attitude or predispositions as relatively unsafe guides for the acquisition of conceptions of "truth," which are workable under any considerable variety and complexity of conditions.

THE PHILOSOPHIC TRANSITIONS.

Now we see a predominance of the tough-minded characteristics—the tendency toward a new kind of monism, energic or materialistic. The idealistic monism is less seriously entertained, and if here there is still a tendency to compromise, it is between dualism and materialistic or energic monism. The more departments of learning there are to which we aggressively and successfully apply the check of experiential relations with objectives, the more pronounced will become the leaning toward the determinism of materialistic forces. So, as we travel from dogmatism to empiricism we also travel from idealistic monism through pluralism to materialistic monism; from free-willism, through limited determinism (James and Leuba) and compromise, to complete determinism; from anthropomorphic religion through pantheism to atheism; from ego-centric godhood through spiritism to extraverted irreligion.

So also do we travel from intuitionalism to behavioristic research; from metaphysics to philosophy. Here I use "metaphysics" in the sense of a process of *reading*

principles into the objective; that is, we objectivize the intellectualizations of cravings and concepts acquired by unconscious processes, and objectively unchecked speculation, or seeming *a priori* principles; so too, I am speaking of philosophy in the sense of *reading principles out of* the universe through the conscious coordination of the greatest convenient number of possible affect-objects; that is to say, philosophy is now viewed as a synthesis of the sciences. Each stage in these developments is determined by the degree of our evolution in the changing attitude toward and emphasis upon relation with objectives, and the consequent kind of multiplicity and complexity of the affect-objects which we have synthetized in the formation of our character, or temperament, if you prefer. In this sense, then, it is true that temperaments (degrees of extraversion) determine our philosophy.

THE IDEALIZATION OF THE SCIENTIFIC METHOD.

Out of these classes, whose various characteristic attitudes toward facts have been briefly outlined, we can see a growth toward a theoretical fifth class of attitude toward "facts" which belongs to the future, for even an approximate realization. This grows out of a large consciousness of relationship not only of the individual to the objective but also of interobjective relations. Now we approach the condition in which the individual extends to his *every* impulse, opinion, hypothesis and concept that same aggressive desire to check and justify by the largest possible experience, just as the best sort of scientific specialist now does within his chosen specialty.

Now there may be a transfer of our greatest interest and energy from the prenatal or earliest infantile state of a wholly ego-centric attention, to an approximation toward wholly objective concentration of interest and attention, so thoroughly objective as always to include the subjective,

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and the whole of the previous affect-objects, as a conscious part of the objectively considered materials. As we approach this latter attitude toward facts, the energic materialistic and the deterministic aspect of the universe tend to become more exclusive of the others. There are no more predispositions of infantile cravings for ego-centric godhood to compromise with.

Now our emphasis will be upon the interrelations of objectives as a still higher development. From this emphasis upon the understanding of relations there naturally comes corresponding emphasis upon the method of considering experiences. Now evolves the formulation, perfection and higher emphasis on the scientific method.

TOWARD EGO-CENTRIC PANTHEISM.

If we could actually enter into conscious relations with every part and aspect of the universe, and so achieve one all-inclusive synthetic affect-object; that is, if we could actually know *all* the "facts" of the universe the relative accuracy of our concepts would have reached an identity with reality and we would indeed be omniscient. Including all within our consciousness, we ourselves would be the pantheistic universe, and the distinction between subjective and objective would have disappeared. While this apparently cannot be realized, the natural forces seem to compel us to travel in that direction, and we might as well insure the best adjustment to the inevitable by consciously, and, as far as may be, consistently, holding the unattainable ideal as our goal, and as near as may be persist in striving toward it and always attempting the use of the whole scientific method, in every expenditure of energy.

In consequence we will see that our concepts approach a relatively greater accuracy, as transcripts of reality, just to the degree that our craving for multiplicity and coordination of affect-objects becomes realized and our ability

as efficient observers grows, by the aid of the whole best scientific method. Here we have the ideal of the scientific method (and its eternal open-mindedness) according to its highest development in the physical sciences, the application of which is now sought, not only to the specialty of the scientist, for in the more advanced stages of development it will approach an automatic application, as a check to every craving, aversion, impulse, and intellectual activity.

GLIMPSING THE EVOLUTION OF PHILOSOPHY.

In the evolution of this radical activity of the universe as manifested in the human focus, we appear first to become conscious of the fact of consciousness. In the intellectualization, or efforts at explaining causation, we gradually become conscious of an objective and then of two elements or aspects of the objective, force and matter. Then still later we discover these two aspects of the objective reflected, or as present within ourselves. That is, we seem to see energy in the movement and change of consciousness and we seem to see matter as the antithesis of thought, so we have come to think of brain as the carrier of thought force.

Those who suffer from repression, or inefficient expenditure of their energies, are prone to acquire an exaggerated consciousness of the force-aspect of things in comparison to the consciousness of its co-related material-aspect, or carrier. In consequence of this they tend to all those characteristics ascribed by Professor James to the tender-minded type. That is to say, they exalt the vital-force aspect of brain functioning and therefore are lured by metaphysics, *a priori* principles, deductive methods and the philosophy of idealistic monism.

Those who by their method of energy-expenditure acquire the wider knowledge and craving for relations with objectives, will develop more or less the characteristics de-

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scribed by James as belonging to the tough-minded, and will tend to emphasize the materialistic and deterministic aspect of things.

The tender-minded, by projecting into the universe their exaggerated conception of the immaterial thought-aspect of ultimate reality, tend to view the universe as immaterial forces, or as a creation of mind. By their relative aversion to contact with the material aspect of objectives, they fail to correct, or outgrow and supplement their idealistic concepts.

The tough-minded ones, pursuant to their craving for experience in relation with the objective, will tend to manifest that development by emphasis upon the matter-aspect of the ultimate reality, and in explanation or justification such persons tend to irreligion, induction and materialistic monism.

TOWARD THE LARGER SYNTHESIS.

We do not know forces in themselves. We know only a little of their behavioristic manifestations under some special conditions. We know nothing of matter in itself. We know only some of its behavioristic manifestations. Again we know nothing of the existence of behavior of either matter or force as an independent thing. These facts, viewed in the light of our knowledge of the trend of mental evolution toward a more perfect synthesis and more comprehensive unity, point to the conclusion that matter and force are but different aspects of the same unitary ultimate reality.

We tend to think of this ultimate unity as force whenever our attention is most focused upon its movements. We tend to think of it as matter whenever the movements approach the limits of our sensibility or are too fine for our discernment. That is, the ultimate unity tends to be thought of as matter whenever we think of it as relatively or abso-

lutely static, and we tend to think of it as energy when it is thought of as being in motion. So we come to the conclusion that static force is matter, and matter in motion is force. Since neither is known in the absolute, or separately from the other, we come to the conclusion that these concepts are but incomplete views of the same thing, the incompleteness of the view resulting in varying emphasis upon different aspects which seem conflicting but really are parts of the one ultimate reality.

But we think of this ultimate unity at all only when its relations to the knowing mind are sufficiently acute to register as consciousness; that is when one or both of the dualistic aspects of the things known enter into relation with the knowing mind. Here again we are face to face with the same dual aspects of things. One part or aspect of this knowing mind we call "brain," "nerves" etc., that is, we think of it as matter. Another part or aspect of the knowing mind we call "thought," "spirit" or "soul," because we are thinking of it as dynamic, as change. But this last is always manifested in change of mental states, that is, in action. The material part or brain is the mind-force, thought of as static. Thinking is the brain-matter in action. So here we come again to that prospect, where the "soul" is the force-aspect of matter and brain is the static aspect of force, and both are but different aspects of an ultimate entity, in itself as yet unknowable.

Thus I am led to another dualism within a dualism, common alike to the knowing mind and the thing known; the subjective presenting the same inseparable aspects of force and matter (thought and brain) as we have discovered existent in the objective. At moments of most acute or clear states of consciousness we can see that this inseparability of different aspects obtains with equal certainty at the approaches to a relative state of unconsciousness. So

we may infer that they exist everywhere quite independent of our consciousness of them.

Now comes the suggestion that the ego (brain and thought), and the objective (matter and force) are again each but different aspects of the same universal and ultimate entity, and thus we reach a synthetic view which includes both the idealistic and the materialistic.

The seeming distinction between subjective and objective may mean only that a portion of the ultimate entity, which we arbitrarily segregate from the rest and call the ego, is viewed in its force-aspect and in relation with the rest of the ultimate reality which is viewed in its static, that is matter-aspect. Thus it may be that even the distinction between subjective and objective is largely an illusion, based upon mere differences of emphasis as between the energy-aspect of the ego part of the ultimate entity, thought of as in contrast with the relatively static aspect of another portion of that same ultimate entity, called the objective. The line of separation now becomes as arbitrary as that between the vegetable and animal kingdoms.

A particular subjective and a particular objective must now be considered as but different yet related foci in the distribution of the universal ultimate reality, perhaps distinguished according to a varying quantity, density, intensity, activity and consciousness, yet all one in kind. Then in consciousness *all* is related and the very distinction between the subjective and objective disappears. In the infinitude of affect-objects, that is when we achieve the theoretic, pantheistic omnipotence, all is one. In this synthetic view of these aspects and contrasts we get glimpses of a unity and a pan-monism which perhaps will be seen to include all the philosophies and all the sciences. With this hint I must rest for the present.

THEODORE SCHROEDER.

NEW YORK CITY.

THE JEWS OF CHINA.

IT is well known that Jews have been resident in China in considerable numbers[1] from a very remote period,[2] as Kohler[3] has shown from evidences of their peculiar rites preserved in connection with their synagogue. Brief notices of their existence have come from time to time before the European public.[4] It is even ascertained that some of them[5] attained an honorable rank in literature and several became ministers of provinces.[6] It seems to me that the most authentic evidence that has been left us of this class of honorable men existing among the Israelites in China is a note at the end of the first section of the law,[7] as found in the synagogue at Kae-fung, a transcript of which was sent to Europe by the Jesuit missionaries, containing the following statement: "Our master, our rabbi, R. Jacob, son of

[1] *Chinese Repository,* Vol. I, 1832, p. 8.

[2] *China, Its History, Art and Literature,* Vol. X, p. 146. "They were supposed to enter the middle kingdom about 200 B. C., during the Han dynasty, and afterward brought the Pentateuch with them from the Babylonian captivity and established themselves at Hanan in 72 A. D."

Abu-Zeyd Al-Hassan, an Arab who claims to have learned from his fellow countrymen who wrote in China in the twelfth century, states "that a massacre took place at Khan-fou in the year 878 and that 120,000 Mohammedans, Jews and Christians were killed." *Relations des voyages faits par les Arabes et les Persans dans l'Inde et à la Chine,* Tome I, p. 64.

[3] *Jewish Encyc.,* Vol. IV, p. 33, col. 2.

[4] Missionary notices found in Chinese Repositories. See also *Jewish Encyc.,* art. "China."

[5] *Chinese Repository,* Vol. XIII, 1844, p. 468.

[6] *Mih-chwang-mwán lŭh,* Book IV, p. 2.

[7] This section, with a great many others, was brought to Shanghai by the two messengers of the London society who visited the colony of Kae-fung-foo in 1851. The whole are now deposited in charge of the Society for Propagation of Christianity among the Jews, in Lincoln's Inn Fields, London.

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Abishai, the son of R. Eldad the (Saupher) scribe and (Melammed) teacher, finished this."[8] The date of this is about 1620. In a register of the Hebrew residents at Kaefung-foo, which was brought to Shanghai in July, 1851, and probably dates from some time in the seventeenth century, there are several mentioned as holding this office. On the first page we find: "Rabbi Jeremiah, the (Saupher) scribe, teacher, Sheloh, the son of Rabbi Akiba, the teacher, Sheloh."

In the records of the Kaon family we find: "Ezekiel; Samuel; Rabbi Issachar, Joseph, sons of Rabbi Mordecai the (Saupher) scribe; Joshua, Shalman, Rabbi Mordecai the (Saupher) scribe, son of Simeon." In the Lee family are cited: "Rabbi Reuben the (Saupher) scribe, son of Eliezer, Rabbi Ezekiel the (Saupher) scribe, son of Rabbi Shelephidem.

Interesting as such incidental notices are, they are far too meagre to satisfy the inquiring mind; and we cannot but regret the absence of fuller details, which would prove acceptable to ethnologists, to historians and to those who delight in tracing out the fortunes of the chosen people of God in the various lands of their expatriation. It seems to me however that further light can be thrown upon the existence of the Jews in China by examining some of the books dealing with travel, as well as Chinese literature itself.

Six hundred and thirty-six years before our era, or seventy years after the Jews had been driven from their land, King Cyrus published an edict throughout his empire, which included "All the kingdoms of the earth," calling the most eminent Jews that were in Babylonia; and he said to them:[9]

[8] Finn's *Jews in China*, p. 37. The original Hebrew of this note, with Latin and French translations, is given in the Prolegomena to Bagster's Polyglott Bible, p. 17.

[9] Josephus, Antiquities of the Jews, Book XI, Chap. I, par. 1.

"I have given leave to as many of the Jews that dwell in my country as please, to return to their own country and to build there the temple of God at Jerusalem on the same place where it had been before."

But a number, as is now known, remained in the Land[10] of the East, and doubtless many of them found their way into China.

Benjamin of Tudela visited eastern countries for the purpose of ascertaining the situation of the dispersed tribes He however mentions only China.[11]

From some incidental remarks in Marco Polo's[12] travels we learn that the Jews were sufficiently numerous about this time to assert a political influence in China and Tartary. Speaking of the defeat in 1286 by Kubla Khan of the Tartar prince Nayan who had a vast number of Christians in his army, he continues: "When the Jews and Saracens perceived that the banner of the cross was overthrown they taunted the Christian inhabitants with it, saying: "Behold the state to which your (vaunted) banners and those who follow them are reduced." In the following chapter, speaking of the rites with which Kubla honored the Christian festivals at Kanbalu (Peking), he adds: "And he observed the same at the festivals of the Saracens, Jews and idolaters." Upon being asked his motive for this conduct, he said: "There are four great prophets who are reverenced and worshiped by different classes of mankind; the Christians regard Jesus Christ as their divinity; the Saracens, Mahomet; the Jews, Moses; and the Idolaters, Sogomonbarkan." Towards the end of the same dynasty we find another record, this time by Ibn Batuta,[13]

[10] Josephus, Antiquities of the Jews, Book XI, Chap. I, par. 3.

[11] Asher's edition of Benjamin of Tudela's *Itinerary*, Vol. I, p. 94, Hebrew text, or Vol. I, p. 143 of the English text. Asher, Vol. II, p. 189, remarks: "Our author however is the first European who mentions China.

[12] Marsden's translation, edited by Thomas Wright, London, 1854, p. 166.

[13] *Travels of Ibn Batuta,* Lee's translation, p. 217.

the Arabian envoy, as to the existence of the Jews in China about the year 1346. In an account of the city of Khansa (Hang-chow) he remarks: "In the second division are the Jews, Christians and the Turks who worship the Sun; these are numerous, their number is not known, and theirs is the most beautiful city."

We have an allusion to the Jews in China about this time from Galeotta Perera, an Italian gentleman, who was for many years a prisoner in that country. Speaking of the administration of justice there he says: "The Moores, Gentiles and Jews have their sundry othes. The Moores do sweare by their Mossasos, the Brachmans by their Fili; the rest likewise by the things they do worship." A native encyclopedia written at this time speaks of eight different systems of astronomy taught at various times in China, the last named being called the "Four Heavens," a theory introduced by the "Heen foreigners."[14]

Manasseh believed that part of the ten tribes crossed the great wall which divided China from Tartary and settled in the former country. He even stated that he believed that there were direct references in scripture to the migration of the Jews into China.

Basnage however states it can clearly be shown that neither the Tartars nor the Chinese are descendants from the ten tribes. He states however that the ten tribes did enter India and China and that the Jews were acquainted with these countries in Solomon's time.

Peritsol, an Italian Jew who lived two centuries ago, stated that the Jews were once powerful in China and India. He tells us that "They neither dwell in houses, till the ground nor drink wine." He also tells us how to get there.

Renandot, writing about this period, refers to the Jews

[14] *San-tsae-t'oo-hwúy*, astronomical section, p. 2.

of China as follows: "They thrive by various means, many of them cultivate the sciences, particularly philosophy, astronomy and physics."

Then came the various Roman and English missionary societies which at first brought us little and then a great deal of information about the Jews. From which information we can conclude that there must have once existed a great number of Jews in China and that they once had a great literature.[15]

Ever since 1851, when the London Society for Propagation of Christianity among the Jews sent its two representatives to Kae-fung-foo in Hanan to find out more about the Jews in that district, it has been a mooted question whether or not there are any references to the Jews in Chinese literature. There is no doubt that from the above foreign references we may conjecture that the Jews have been residents in China for a great length of time. Let us now see if we can possibly find Jewish records in China which bear out the above conclusions.

According to the testimony of one of the stone tablets in the synagogue of Kae-fung-foo the Jews first entered China during the Han dynasty,[16] and we are also told in letters of missionaries that "they came during the reign of Ming-te (A. D. 58-75) from Se-Yih, that is, 'the western regions.' "[17] It seems from what can be gathered that this western country can be none other than Persia, and that they came by the way of Khorasan and Samarcand.

There is no doubt that the Jews must have greatly increased in numbers, for I find in one place that in the year 845 Emperor Woo-tsung issued an edict and ordered the suppression of the Heen worshipers.[18]

[15] *Chinese Repository*, Vol. I, 1832, p. 8.

[16] *Chinese Repository*, Vol. XX, p. 454.

[17] *Lettres édifiantes et curieuses*, Tome XXIV, p. 62.

[18] I shall try to prove that the Heen and the Jews were one and the same people. Consult *Se-ké ts'ung-yù*, Book I, p. 19.

In the years 956 and 958 we find that the local authorities at Kae-fung-foo conferred honors upon the Jews.[19]

The next information we get about the Jews is from the tablets in the synagogues, which tell about an immigration of seventy families with tribute of western cloth.[20] The statement is attributed to the Emperor Heaon-tsung of the Sung dynasty, that "since they have come to our central land and reverently observe the customs of their ancestors, let them hand down their doctrines at Peen-leang (Kae-fung)." In 1163 the erection of a synogogue was begun at the expense of Yen-too-la, and was finished two years later while Lie Ching and Woo-sze-to were the religious heads."[21]

This may be looked upon as further corroboration of the statement above, that the Jews passed through a season of reverses and only through a special act of the imperial clemency were they allowed once more to build houses of worship.

The next reference that I find concerning the synagogue is in the latter half of the fourteenth century during the Ming dynasty when the synagogue was repaired.[22]

In 1421 the building was again repaired under the direct patronage of the emperor, and an imperial tablet of the Ming dynasty was placed in the hall of the synagogue and a royal commissioner was sent there to burn incense.[23] In 1445, owing to the fact that the front portion of the building was dilapidated, the synagogue was rebuilt, but a great flood which took place in 1461, due to the overflowing of the beds of the Yellow river, almost resulted in the de-

[19] *Mih-chwang-mwán lŭh*, Book IV, p. 2.

[20] Professor Hirth of Columbia University has suggested to me that this might be cotton, inasmuch as this fabric was introduced into China several centuries later.

[21] *Chinese Repository*, Vol. XX, pp. 454-457.

[22] *Chinese Repository*, Vol. XX, p. 457.

[23] It had also been customary for Gentiles to bestow gifts upon the Temple in Jerusalem. Cf. Schürer's *The Jewish People in the Time of Jesus Christ*, Vol. I, p. 304.

struction of the whole building. It was soon however rebuilt by the imperial permission and an additional portion was annexed in the latter half of the fifteenth century. We can well assume that there were various Jewish settlements in different parts of China, in view of the fact that the Jews of Kae-fung-foo were able to obtain rolls of the Law from Ning-hea and Ning-po instead of those destroyed by the flood. There were also Jewish colonies at Hang-chow and Peking.[24] In 1489 the building was entirely renovated and another stone was erected in commemoration of this event.

We find another tablet within the remains of the temple enclosure, dated 1512, on which is given a general outline of the religious views. At the close of the sixteenth century it is recorded that they were again deprived of their books by a fire and that they bought a roll of the Law from a Mohammedan at Ning-keang-chow in Shen-se[25] who had received it from a dying Jew in Canton. From this they made several copies. The synagogue was rebuilt by one named Chaou.

As to the fortunes of the Jews from that day to this one can find sufficient material in the records of the London Society for the Propagation of Christianity Among the Jews, the *Jewish Quarterly Review*[25a] and the *Jewish Encyclopaedia*.[26]

After examining the sources that the Jews have left us, let us now examine the Chinese literature and see what this

[24] *Lettres édifiantes et curieuses,* Tome XXIV, p. 62.

[25] This Mohammedan may in reality represent several, inasmuch as Father Trigault, in his account of the Christian missions to China, published in the beginning of the seventeenth century, states that during his time both Mohammedans and Jews were known under the general names of Hwuy-Kwuy. I have also found that the Jews and Mohammedans were also called Hwuy-tsze, and that the word for "temple" and "mosque" was the same, namely, Tsing-Chin sze (Temple of Purity). See *Chinese Repository,* Vol. XX, p. 154. Gozani, who visited China in 1704, calls the synagogue "Le-pae sze," a word which was similarly used to designate a mosque.

[25a] *Jewish Quarterly Review,* Vols. VIII, X, and XIII.

[26] *Jewish Encyclopaedia,* Vol. IV, p. 33.

neglected field contains for us on this subject. We find that during the Middle Ages the annals of China contain the mention of several foreign sects[27] by name, among which are Muh-hoo, Ta-tsin, King-keaon, Mo-ne, Mŏ-ne, Po-sze-king-keaon, Ho-shin, Heen-keaon, Teen-shin, Hoo-t'een-shin, Hoo-heen, Ho-heen, etc. Some of these sects received the name from their founder, as for instance Muh-hoo Mohammedans; some are designated according to their nationality, as for instance Ta-tsin, the Syrians; others are named from the object which they worship, such as the Heen-keaon or worshipers of Heaven.

Let us now briefly attempt to ascertain the meaning of Heen-Keaow or Heen religion, and perhaps we shall be able to find a few further references about the Jews in China. Peih-Huen, the editor of Chang-gan-che,[28] says, with regard to this sect: "I find these are the same as the (T'een) Heaven worshipers spoken of in the history of the northern Wei dynasty. But in ancient times there was no such character as Heen."[29] I have been told that there are no references to be found in the most ancient dictionaries for the character Heen, but that the earliest source containing a reference to it is the *Yuh-Peen*.[30] The character Heen is here designated as a foreign spirit. The *Kwang-yun*, of later date, gives, "a foreign spirit." In the "catalogue of official grades" there is one styled the Heen chief, pronunciation, "Hyen." The *Tseih-yun*, a work of the Sung dynasty, gives, "pronunciation, T'een; the same sound as Heen." The Yun-hwuy, a subsequent work, gives, "pronunciation, Hyen; the same sound as Heuen."

The *Luh-shoo-tung*, published during the fourteenth century, says: "In Kwan-chung (Shen-se) Hewen is called Heen. Foreigners designate Deity by the word Heen."

[27] Alexander Wylie, *Chinese and Japanese*, Vol. I, 1863.
[28] Printed in 1787. [29] Book IX, p. 4.
[30] Published by Koo Yay-wang in 523.

The *Hung-woo-ching-yun*, about the end of the fourteenth century, gives: "A foreign spirit. The character is formed from the radical Teen (Heaven). In the Catalogue of the Tang officials there is one called the Heen chief."

The *Chung-yun-hwuy-peen*, which is a re-arrangement of the materials of the preceding, with modifications, published at the beginning of the seventeenth century, says: "This rhymes with Seen, Heen. The character is formed from the radical T'een (Heaven)."

The *Ching-tsze-tung*, published about the middle of the seventeenth century, gives, "Pronunciation, Hyen, same sound as Heen. The name of a foreign spirit. In the Catalogue of the Tang officials there is the Heen chief." The *Kang-he-tsze-teen*, published under the direction of the second emperor of the present dynasty, merely contains a summary of the preceding notes.

A new edition of the *Shwo-wan*, *Shwo-wan keae-tsze tung-shih*, gives the elements "she" (spiritual influence), and "Teen" (Heaven). The pronunciation is Heen.[31]

The Heen are also named in the *Chung-yen-sze-pae*, or "Tablet of the Chung-yen Monastery," by Shoo Yuen-ye in the first part of the ninth century. Among the various foreigners who arrived were the Syrians and the Heen worshipers.

From the above lexicographical details we conclude that Heen is the pronunciation given to the word Teen

[31] *Chinese and Japanese Repository*, Vol. I, 1863, p. 14, addition to note 8. Several dictionaries testify to the fact that an imperial officer was appointed to take charge of the office of burning incense. Yaou-Kwan, in respect to the above, says: "In a catalogue of the imperial officers I have seen one called Heen chief. When the followers of the Heen religion first arrived they were received as followers, according to the custom of the Guest Reception Hotel (Hung-loo she). As a result of this the members of this religion were subject to the authority of a tribunal. It is probable that these people arrived at the beginning of the T'ang dynasty. See Book I, p. 18. The Arabs also were compelled to have a tribunal over them, like the Jews—which is another point of similarity between these two peoples. *Relation des voyages faits par les Arabes et les Persans dans l'Inde et à la Chine*, translated by M. Reinaud, Paris, Tome I, p. 13.

(Heaven) in the province of Shen-se; that this same Heen was the generic word for Deity among western foreigners; that a foreign sect in China worshiped the being designated as Heen; and that an officer of the Tang dynasty was originally supervisor of these sects. We thus see, from the above remarks, that Heen is of recent formation, and I am told that it cannot be found in any book earlier than the sixth century, especially as we have the authority of Peih-Yuen, as we have noticed, that the words Heen and Teen were regarded as synonymous by a foreign sect. In opposition to the view stated above we have that of Yaow-Kwan[32] who traces this religion to the seventh century B. C. His chief authority is a statement taken from Too Yu's commentary on the Tso-chuen[33] which is an amplification of the Confucius history, *Ch'un-ts-ew* ("Spring and Autumn Annals").[34] The text of the *Ch'un-ts-ew* says: "In the nineteenth year of Duke He (B. C. 631) in summer, on the forty-sixth day of the cycle, the men of Choo took the Viscount Tsang and offered him in sacrifice." The *Tso Chuen* says, regarding this: "In summer the Duke of Sung caused W'an, the Duke of Cho, to offer up the Viscount Tsang on the tutelary altar by the river Suy with a desire to conciliate the eastern foreigners." The commentary on this, quoted by Yaou-K'wan, reads: "The Suy receives the Peen, and passing Chin to the east, leaving Leang-tseaow and Pang-ching, it flows into the Sze. Near this water a Heen spirit ruled, which it was the general practice to serve with tutelary worship; hence human beings were slain and offered in sacrifice." This is such a different and grossly exaggerated interpretation, and one which has doubtless

[32] In the *Se-ke ts'ung-yu*, a collection of notes critical and historical, written about the middle of the twelfth century, Book I, p. 18.

[33] This was written by Tso Kew-ming, a disciple of Confucius, and is a record of contemporary events necessary to throw light on the original chronicle.

[34] This is a history of Joo, the native state of Confucius, being the only complete work written by the sage.

been interpolated by some later hand, that it would hardly be of any use to consider it were it not for the fact that it was reproduced without comment in a modern native geography, *Hae-kwo-t'oo-che.*[35] We are glad, however, to note that the above reading is not supported by any authority. One scholar even denies the above statement.

In *Gae jch-ts-ung-ch-aou*[36] we find the following: Too Yu, in his commentary on the *Tso-chuen,* says, regarding the passage on the tutelary altar by the river Suy: "There was a Heen place of worship upon the Suy river. That is impossible, how could there be a Heen place of worship in China in the time of Duke Seang of Sung?"

Another interesting reference to the Heen places of worship is found in the *Mih-chwang-mwán lŭh,*[37] published about the twelfth century. We read there that "on the north side of the city wall of the eastern capital (Kaefung) there is a Heen place of worship. The Heen Spirit originally came from the western regions. They came here with a band of Mohammedans. The Heen worshipers greatly revere this spirit and pay great homage to him. The minister of the temple is called She, with postnomen She-Chwang. His office was hereditary[38] for a great many generations from the time of the Tang dynasty the Heen religion was prevalent in Peen and there religious teachers have succeeded one another for over two hundred years.[39]

We find that there were several other places of worship of the Heen religion in Chang-gan-che, but they do not tell us the date of their founding. The quotation in question

[35] Commissioner Lin, famous through the first war of China, collected this material from foreign sources. Wee Yuen, however, a bitter enemy of all foreigners although a great scholar, was the editor of this work. This masterpiece is, however, marred by the onesided view of its editor.

[36] This is a miscellaneous work written by Ye about the end of the Sung dynasty and said to contain a number of interesting historical data.

[37] Book IV, p. 2.

[38] There are doubtless descendants from the house of Aaron, proof of which will form the subject matter of another paper.

[39] Book IV, p. 2.

reads as follows: "On the west side of the south street dividing the Tsing-kung square is a Heen place of worship."[40] We may also note another quotation, "To the south of the Western gate of Le-tseuen square[41] is a Heen place of worship." One acquainted with the Bible and post-biblical literature will at once remember that the Jews were fond of designating their God by various phenomena. One of the most prominent designations that one finds as an appellation of Jehovah is Heaven, or, by metonymy, God of Heaven. The following examples from the Bible and the Talmud[42] might well prove my contention that the Heen religion is none other than the Jewish religion:

"And whereas they commanded to leave the stump of the tree roots; thy kingdom shall be sure unto thee after that thou shalt have known that the Heavens do rule."[43]

"Fear of Heaven."[44]

"The time of the Malkuth of Heaven is come, that it should be revealed."[45]

We may further strengthen our argument by noting that Tseang-Yung-che, the elder of the two agents of the London Society who visited the synagogue at Kae-fung (in 1851), in giving his report, says that at the present day, "In addressing God in the Chinese language they use the word T'een." There is also evidence that the worshipers of the Jewish religion who came to Shanghai and Peking also designated their God by a similar name. Gozani also relates that they worship their God under the name of T'een.[46] A memoir on the Jews of China gives the following information: "In translating the name of

[40] Book IX, p. 4.

[41] Book X, p. 6.

[42] See rabbinical dictionaries s. v. שָׁמַיִם; also Schürer, *The Jewish People in the Time of Christ*, Vol. II, p. 171.

[43] Dan. iv. 26.

[44] Aboth 1-3. See also A. Z. 18a, Hullin 7b, Gen. R. LXXIX, 6.

[45] *Pesikta*, Ed. Buber, p. 51a.

[46] *Lettres édifiantes et curieuses*, Tome XVIII, p. 36.

Jehovah into Chinese they do not say T'een-choo like the missionaries, but simply T'een, just as the scholars of China do when they explain their term Shang-te.[47]

A still further proof that the Heen and Jewish religion are identical can be gained from the Lieutenant Governor of Fuh-Keen, Seu-Ke-yu, who in his geography of foreign countries remarks:[48] "From Judea westward the nations all worship the T'een (Heaven) spirit. The worship originated with Moses, about the time of the commencement of the Shang dynasty. It is said that the T'een spirit descended on Mount Sinai and gave ten commandments for the guidance of mankind, whence originated the appointment of the seventh day for rest and worship, being a thousand and several hundred years before the birth of Christ. This then is the source whence the Roman Catholic religion took its rise, but it is not identical with the Roman Catholic religion. From the time of the former five dynasties there have been places of worship of the Heen spirit in China. There have also been places of worship of the (Hoo) Foreign Heen, and the (Ho) Fire Heen. We find that this character Heen is compounded of the two characters 'she' (spiritual influence) and T'een (heaven), equivalent to the T'een (Heaven) spirit. This religion took rise in Judea, on the eastern border of the Roman empire."

Thus, then, may we safely conclude that at a very early date there were numerous synagogues in China and that there were an innumerable number of Jews resident not only at Kae-fung-foo but in various parts of the Chinese empire.

JULIUS J. PRICE.

TORONTO, ONTARIO.

[47] *Lettres édifiantes et curieuses,* Tome XXIV, p. 73.
[48] *Ying-hwan che leo.*

THE PILGRIMAGE.

O THOU, to whom my yearning soul I send
Of fuller knowledge of Thy truth in quest;
O Thou, to whom my knees in prayer I bend
To ask an understanding which gives rest
And peace unto an anxious, waiting heart;
O answer! is there purpose for my being?
Is need in this world's struggle for my part?
Some task for me there must be in this strife,
To lift me from the dust from whence I came;
Else why did Thy commandment give me life,
To struggle, suffer, yet to glorify Thy name?
My being craves assurance that there be
Some end, some lasting good to crown my strife,
I dare not ask that end or good to see,
But yearn to know that purpose guides my life.

When I recall the struggles of mankind,
The bitter wrongs, the evils that endure,
Doubts if indeed Thou art, steal o'er my mind,
For how can evil come from one all pure?
The years thus make my constant doubting grow,
As chaos and confusion they present;
In them no order seems, that I may know
By purpose, not by chance, man's life is bent.
Man comes into this realm of pain and tears,
His soul unasked if it desireth birth,
A way he seeks, midst many doubts and fears,

UMI

To fill his days with meaning on this earth;
He gains a goal, only to find at length
That what he sought is but an empty spoil;
Again he starts, renews his waning strength,
Tries even greater tasks, takes up new toil.
He finds his efforts vain, his struggles bare,
As on he journeys o'er life's thorny way,
And ofttimes in despair he breathes a prayer,
And pleads with Thee that Thou wilt end his stay—
Yet fears Thy answer, for he may not know
What mystery shall lie behind death's pall;
Thus, each of us shrinks from that unseen foe,
And ponders where his next dread blow may fall.

Death takes the ones whom most we need and love,
Who bring us joy and lessen all our ill,
And while we pray that we may meet above,
We do not know, we can not know we will.
There is so much our souls desire to do,
Yet little is the part that may be done,
Of all our dreams, we may but strive for few,
When death shall come, and leave those half begun.
Then will what little good we leave behind
Soon vanish, as in Spring the Winter's snow,
No sign of all our strivings will men find,
Nor trace of us will they who follow know.
Is't true then, life is but a shooting star,
Which burns with brilliance in a moment's flight
And then is gone, and leaves no trace nor sign,
As quickly lost to memory as to sight?

If Thou wilt teach me there a purpose be,
That every life has meaning in Thy sight,
Then willing, happy, will my spirit be,
No longer need I struggle in black night;

Though dark the way, and perils me beset,
Though grief and death assail me on all sides,
Strong shall I be once more the task to seek,
For which my spirit on this sphere abides.

In search of truth, I pilgrim far from home,
O'er mountain and through valley, day and night,
Still waiting for Thy token will I roam,
Nor rest will know until I see Thy light.
My journey brings me to a dizzy height,
I gaze into a canyon far below,
About me on all sides great mountains rise,
Upon whose lofty crests bright gleams the snow.
In shadowed depths a rushing torrent flows,
Down gulleys deep, with echoing roar, it falls;
'Mid castled crags the stately eagle flies,
And to its mate, with piercing cry, it calls.
All these, the bracing wind, the forest green,
The sky, the golden sun, which here combine
To make the glory of this wondrous scene,
Reveal to me Thy truth through works divine.
Then sets the sun, the darkness closes 'round,
The canyon's depth has disappeared from sight,
With eagle's scream no more the rocks resound,
But quiet reigns, and peace and pale moonlight;
The brilliant stars in myriads deck the sky,
And gleam as beacon lights of hope and cheer,
They blazon forth that Thou didst hear my cry
And bid my soul find peace, since Thou art near.
With thoughtful heart I lay me down to rest,
Beneath the stars whose light now fitful glows,
Once more I see the mountain's snow-clad crest,
And then in soothing sleep my eyelids close.

But, lighting slumber, comes an angel form,
A wondrous vision, radiant and bright,

UMI

Who speaks: "Thou pilgrim, who the truth wouldst seek,
Lo! I am sent to show the longed-for light.
Thou wouldst have meaning of man's life revealed,
Thou wouldst know if man's strivings count for aught,
Thou prayest that life's secret be unsealed,
God bids me answer what thy soul has sought.
With wonder thou didst view that scene by day,
With awe didst gaze upon the stars by night,
And now I ask, Did they themselves create
And merge themselves into that scene so bright?
The order which the universe makes plain,
That order which each human soul must see,
Is token sure, which may not be denied,
That somewhere a great Master holds the key.
Are not the earthly tools that man doth make,
Created by him for a purpose known?
Why then should water, earth, the heavens above,
All nature's gifts, be accidents alone?
They are the tools that He who rules the earth
Has made for lofty purpose of His own;
Placed in the hands of man at the world's birth,
They are the means through which His will is shown,
And since all things in nature purpose show,
Canst thou then think the Maker's highest art,
Man, who, supreme of all creation stands,
In God's great scheme plays yet a lesser part?
Man, who o'er all the sole dominion hath,
Who harnesses great nature by that right,
Who tunnels mighty mountains for his path,
And alters rivers' courses by his might,
To whom the gift of conscience has been lent,
Who, through that power, the good and true may choose,
The evil shun and wickedness resent,
And life exalt or, brute-like, may abuse.
Canst thou believe that man, creation's king,

The ruler of whatever is on earth,
Was placed thereon to live his few short hours,
And have no ordered purpose for his birth?

"This much in answer to thy prayer is sent,
But if thou further light wouldst have me give,
And teach thee how thine efforts should be bent,
I will direct thee how on earth to live—
To live, that when at last thy time is come
To bid farewell to all and then depart,
Thou mayest be at peace, and rest content,
And know for purpose thou didst play thy part.
Up to the best within thee, day by day,
Live every moment and through every hour,
And that the best grow greater shalt thou pray,
And strive thy soul shall blossom like a flower.
Where wrong exists and where oppression reigns,
Be thine the task that evil to allay,
And by the truth, as truth thou mayest see,
Be guided, and despair not in the fray.
If all the odds against thee may seem cast,
And if of striving thou mayst weary grow,
Still shalt thou smile, still must thy battle last,
Though thou be crushed, and hope no more dost know.
Let every spirit whom thou mayest meet,
Be strengthened and be bettered by thy soul,
That, leaving thee, he may ennobled be,
And better fitted to attain his goal.
If thus thou livest, thou shalt be assured
That what is asked of thee has been attained,
The final end is not for thee to know,
Sufficient be the truth that thou hast gained."

Sublimely then the radiant angel smiled,
And slowly faded from my eager sight,

UMI

The sound of singing birds breaks through my dream,
And I am wakened by the morning light.
I see the snowy mountains gleaming clear,
And watch the fleecy clouds drift in the sky,
I feel the sweeping wind against my cheek,
As joyous, happy, on my couch I lie.
For peace at last hath come unto my breast,
And I have gained the wisdom that I sought,
No more shall doubts and fears my soul perplex.
Content am I with what my vision brought.
My way in life now clear before me lies;
Thy glorious token strong has made my soul
To bear with courage all that life may bring,
As on I struggle toward the distant goal.

EMANUEL GEORGE FRANK.

DETROIT, MICH.

CRITICISMS AND DISCUSSIONS.

PRAGMATISM AND TRUTH.

To the Editor of The Monist:

I have just had the pleasure of reading your *Truth on Trial,* and have read it with very much interest. You make a very strong case against pragmatism, and yet, it seems to me, fail to appreciate its strong points. With apologies for attempting with the small equipment I possess to set right one who has with so much success devoted his life to the study and exposition of philosophy, I offer below a few objections to the arguments you present.

My first reference is to your section on pages 56 and 57 entitled "A Lie that Works Satisfactorily." It seems to me that you miss the pragmatist position there utterly.

Let us consider the question more carefully. Rothschild believes that if he can make the public believe that Napoleon has won the battle of Waterloo he (Rothschild) can take advantage of this belief on the part of the public (the investing public) to his own financial advantage. With this belief as a working hypothesis he proceeds to spread the report and at the same time so conduct his financial operations as to take advantage of those who believe the report. The judgment "works." Now Rothschild won, not because he believed a lie and the lie worked satisfactorily. Rothschild did not believe the lie that Napoleon had won at Waterloo. His dupes believed that Rothschild told the truth, acted on that belief, and found that it worked disastrously. Rothschild's judgment became true, his dupes' judgment became false. No better pragmatic example could have been chosen.

My second example is your definition of truth, especially that given on page 85. Does this fairly represent your definition? "Truth means that a subjective statement properly describes or represents an objective condition of things." Pragmatism says that "truth is a relation, not of our ideas to non-human realities, but of conceptual

parts of our experience to sensational parts" (William James, *The Meaning of Truth,* page 82). Now if by "an objective condition of things" you mean our perceptions, what Royce (*The World and the Individual,* page 95) calls sense-perceptions, then it would seem that there is no conflict between you and the pragmatists. But if you mean by "an objective condition of things" some objective reality outside of human experience, then of course you and they part company. But I find it difficult to understand just what connection with our thinking a reality entirely outside of human experience can have.

Let us take the case of the figure of the earth. There was a time in the experience of the race when it had not entered into the mind of man to conceive that the earth is a sphere. All his judgments that took into consideration the surface of the earth implicitly assumed that it was (or is) flat. And these judgments "worked." For all his purposes the earth is flat. Even to-day if a man builds his house on the assumption that the earth's surface is a plane and not the surface of a sphere, the judgment will work. For the purpose of supporting a house the surface is a plane. That is, it does not depart sufficiently from a plane surface to make any practical difference. Of course for the navigator, the engineer, the astronomer, that judgment will end in frustration, and is therefore not true. Then suppose that man had never discovered the sphericity of the earth. What could any so-called objective reality of this sort, entirely outside of his experience, have to do with the truth of his judgments? Truth is a relation of a part of our experience to other parts. If this lies outside our experience, our judgments can have no truth-relation whatever with it.

My third exception to your characterization of pragmatism is based on what you say on page 110, especially the following: "It no longer fits into the program of the 'new thought' movement, and pragmatism replaces it [the old ideal of truth] by a more elastic kind of truth which can change with the fashions, and makes it possible that we need no longer trouble about inconsistencies; for what is true to one need no longer be true to others, and the truth of to-day may be real now, and yet may become the error of to-morrow."

To the objection that according to pragmatism what is true to one need not be true to another, we may reply that experience is a social possession and that most things that are true to one must be

true to another. In most things our experiences are so nearly alike we may, and do, "postulate an irrelevance of differences." For the reason that we are social beings there cannot be anarchy in the realm of our truths. That there will be *some* difference in our truths the fact that we are also individuals will make inevitable. But in all those cases where social action is essential our truths will be nearly enough alike to work together.

To the objection that what is truth to-day may be error to-morrow, the answer is that if to-morrow is sufficiently distant in the future it may well be. Pragmatists, if a very humble member of the confraternity may speak for them, believe that *all* truth is in the process of change, some of it in very rapid process, some in a process so gradual as to be almost, or quite, imperceptible. Some truth is so well established that no change seems likely to occur in it within any time that can mean much to us. Maybe a figure may help us here. According to the geologist the whole surface of the earth, that is the land surface, is in process of weathering, from the lightest dust which the wind drives before it to the granite core of the mountain. But that does not mean that the earth's surface will all be changed to-morrow, or that the mountain climber of to-day will not find his mountain there next year, should he care to climb it again. So it is with truth. We cannot say that there is any part of it that will never be questioned and overthrown. But we can say that it is stable enough for us to find our way about in it, and be able to recognize the old peaks to-morrow.

I shall not apologize again. If this has not interested you, you have thrown it away long ago. If it has interested you, no apology is necessary.

Very sincerely yours,

M. Jay Flannery.

Hamilton. Ohio.

EDITORIAL REPLY.

In answer to your first point I have to say that you are right: "No better pragmatic example could have been chosen" than the Rothschild case of making a lie work. A lie may be made to work, but that will never change a lie into truth, as according to pragmatic terminology it ought to. The Rothschild case proves that the pragmatic definition of truth is somehow deficient.

I do not think that I have misunderstood Professor James, or missed his meaning; but I think that he formulated his definition of truth so as to point out the practical, not the theoretical, significance of truth—a method which is fundamentally wrong, if he has in mind to build up a theory of the world, of life, of scientific knowledge, and of truth in general. His preference for the practical is justifiable, but he has carried it to extremes where it is no longer applicable.

As to the second point, I will grant that there is no essential difference between the two definitions of truth, viz., that of Professor James, that it is "a relation, not of our ideas of non-human realities, but of conceptual parts of our experience to sensational parts," and the definition quoted from me: "Truth means that a subjective statement properly describes or represents an objective condition of things." The objective condition is always pictured first in sensational experience, and our conception of objective existence is based upon sensational experience. This is one of Kant's discoveries and need no more be discussed. But while sense-impressions are subjective and may be different in different individuals, there are elements in them which are stable and they constitute the basis of objective truth. These elements are purely formal features of experience which can be systematized in the purely formal sciences, arithmetic, geometry, logic. As soon as man begins to count and to measure, he thinks in objective terms. His sense-impressions may be faulty, he may be more or less color-blind, but if he makes a proper use of numbers and measures, his statements cease to be purely subjective and he furnishes data for building up scientific theories.

Pragmatists have failed to make a difference between the different statements of observation, and thus truth to them is and remains subjective. Its only guarantee of being of superior value to statements which may be less true is its practical usefulness. In spite of the importance which usefulness has in our appreciation of truth, I cannot help saying that the pragmatic definition of truth is extremely superficial.

Your explanation that for practical purposes it remains quite indifferent for a farmer to look upon the earth as a plane is quite obvious, and nobody will deny it. If we did not understand it as a matter of course, it might help us to explain how Professor James came to the conclusion that the earth of such people is really flat,

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but it would none the less not excuse the use of the word "truth" under such circumstances.

This leads me to your third point in which you seem to identify truth with belief. Truth as I conceive it has nothing to do with the conception of truth. The latter may be and naturally is mostly a social experience, but this is exactly the fault of the pragmatists that they do not distinguish between truth itself and the subjective conception of truth. The former is an ideal, and what we call science is a method of work which realizes a gradual approximation to it. The attainment of truth in all completeness may be impossible, but our approach to it is not for that reason by any means either fantastic or illusory. Science holds an important position in the sphere of human activity and possesses features of greatest significance. The mistake of pragmatism is that it underrates the significance of science. But for all that, science will work on even where its significance is misunderstood.

Professor James never really understood the significance of science. He was an ingenious, highly interesting and personally lovable man. Whatever he discussed, or included in the field of his investigation, became interesting. His theories were rarely correct, generally inexact, but always fascinating. He never cared to work out his thoughts into a system that would be free from contradictions. His observations were scintillating with intellectual pyrotechnics. His success in his philosophical propositions was more due to his personal qualities than to the intrinsic value of his thought. He had a certain instinct to take the wrong and deck it out in such splendor that it became interesting to the masses, but errors in his hand, though they become beautiful and attractive, remained errors for all that and in his pragmatism his errors reached the danger point. In this connection he stood out in strong contrast with men who saw the only true philosophy in the philosophy of science which would demand of us, first a recognition of the significance of science; secondly, an understanding of the real meaning of science; and thirdly, its application to practical life.

This philosophy of science, which may also be called the philosophy of form, is based upon the objective character of our purely formal sciences. No one can learn to think scientifically who is not a master of the formal sciences. They are the basis of all objective knowledge, and thus they alone can give us the key to a comprehension of the world and the assurance of the reliability

of scientific truth. For a short statement of my views on this subject I refer the reader to my pamphlet, *The Philosophy of Form.*

Any truth once stated will remain true. Our conception of truth to-day may later prove to be insufficient and will change in so far as it will have to be stated more broadly as soon as we have discovered truths that are supplementary. Thus the truth of to-day will have to be amplified by the new truths of to-morrow, but if a truth is correctly stated to-day it will never become an untruth or a lie. The truth of to-day will always remain a truth, although it may become a stepping-stone for a higher truth that will be broader and more exact. Such are scientific truths. The shape of the earth was as good as flat to the Egyptian peasant, but the "flatness" of the earth really referred at that time only to the valley of the Nile, not to the whole earth. The conception of flatness of the earth as a whole was never true. Even though the Egyptian farmer may not have had the data in his hands by which he could disprove his incorrect notion; even though there may be many conceptions which are erroneous or purely subjective, and which we could never disprove, still the ideal of truth remains as significant and indispensable for science as our confidence in and reliance upon methodologically systematized knowledge, in other words, our confidence in science.

Here lies the main error of pragmatism.

According to the belief of Professor James's friend, Mr. Charles S. Peirce, the pragmatic applicability of truth is most essential, and the theory of gravitation would find serious refutation to-day if it would be to any one's pecuniary advantage to deny Newton's view of gravitation. That the theory of gravitation has been accepted, is, as Mr. Peirce suggested, mainly due to the fact that there were no pecuniary or practical interests that militated against its acceptability. This may or may not be true; at any rate I am not prepared to deny it. I believe that pragmatism carries the practical criterion of truth to a degree where it becomes actually dangerous to our philosophical well-being. EDITOR.

EVEN ORDER MAGIC SQUARES WITH PRIME NUMBERS.

THEIR CONSTRUCTION BY THE METHOD OF "PSEUDO-COMPLEMENTARIES."

Although this method was devised primarily for, and is explained in, the present article in connection with prime number

magic squares, it is applicable to other series of numbers, though the nature of the latter generally allows the employment of simpler methods. With the following method it will be noted that squares of orders $8p \pm 2$ do not involve any extra difficulties in constructing, as is quite common among other methods.

Fig. 1 is an example of the lowest order of squares constructed by this method, and the arrangement of its normal complementaries is shown in Fig. 2, the heavy lines connecting the two cells of each complementary couplet. This uniformity of complementary arrangement is identical for all orders concerned.

As an example we will explain the application of this method to a square of the sixth order; but first let us note the character of the pseudo-complementaries.

613	239	647	181
491	337	769	83
349	503	71	757
227	601	193	659

S=1680

Fig. 1.

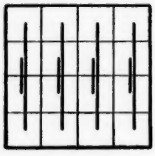


Fig. 2.

A			C		B
8	9	24	25	40	41
7	10	23	26	39	42
6	11	22	27	38	43
5	12	21	28	37	44
4	13	20	29	36	45
3	14	19	30	35	46
2	15	18	31	34	47
1	16	17	32	33	48
A			C		B

Fig. 3.

In Fig. 3 we have a table with n vertical columns and an indefinite number (in this case 8) of horizontal rows. This table was arranged by placing 1 in the lower left-hand cell, and numbering the cells in sequence, up in the first column, down in the second, up in the third, etc., until the table was filled. A line A—A is drawn between the first and second columns, and the line B—B centrally divides the remaining columns. The line C—C centrally divides the whole system.

It will be noticed that all horizontal pairs balanced on the line A—A have equal values. This also applies respectively to lines B—B and C—C. The pairs about the line C—C are *normal com-*

plementaries, while those about the line A—A or the line B—B are *pseudo-complementaries.* For convenience of explanation in the present writing we will classify the latter according to their rank with the normal complementaries, those about the line A—A being *minor* and those about the line B—B being *major.* It should be understood however that more than two sets of pseudo-complementaries may be used in larger squares, their number depending on the size of the square.

A complementary row of Fig. 3 is shown in Fig. 4, which plainly shows the relation of the normal and pseudo-complementaries. Each minor complementary = 17, each major = 65, and each normal = 49. Also, referring to Fig. 3, it will be noticed that the sum of one minor and two majors is equal to three normals regardless of their relative position, for example, $(6+11)+(24+41)+(19+46)=(23+26)+(2+47)+(16+33)$.

Another feature to be observed is that each number of a pseudo-pair has its own respective normal complementary, for example, in

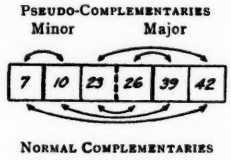


Fig. 4.

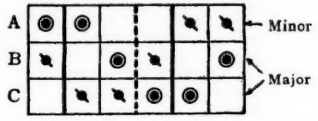


Fig. 5.

the pair 8, 9: 8 is normal to 41, and 9 is normal to 40; also, in the pair, 23, 42: 23 is normal to 26 and 42 is normal to 7.

These pseudo-pairs with their normal complementaries we will call for convenience *complementary sets,* and these are shown diagrammatically in Fig. 5. The upper line A represents a minor set, while B and C represent major sets, the minor and major classification being only in respect to the pairs shown with dots enclosed in circles, because these are used in constructing the square, while the pairs represented by dots with a line drawn through are used only when selecting sets from the prime number table.

Let us now pass on to the construction of this table and the selection of prime number sets.

Referring to Fig. 6, the horizontal rows should contain n cells (in this case 6). The number of cells in the vertical columns must be learned by experiment so as to allow for a selection of a sufficient

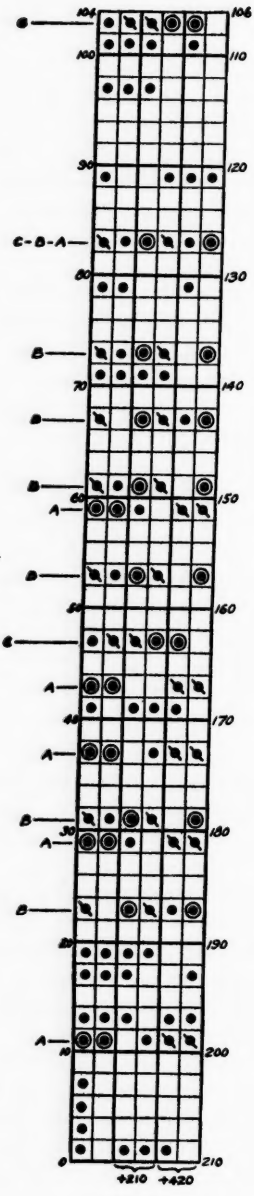


Fig. 6.

×	11	199	233	607
	29	181	241	599
	37	173	269	577
×	43	167	271	569
	59	151	277	563
			283	557 ×
			293	547 ×
			317	523 ×
			373	467

Fig. 7.

	29	181	233	607	467	373
A	263	577	173	241	37	599 A
	59	151	271	569	563	277

Fig. 8.

29	181	233	607	467	373
571	479	359	61	67	353
263	577	173	241	37	599
367	53	457	389	593	31
59	151	271	569	563	277
601	449	397	23	163	257

S=1890

Fig. 9.

number of complementary sets to build the square. The number of sets necessary is $(n/2)^2$ and of these $n/2$ must be minor sets.

There is one essential rule however governing the length of the table; that is, to create the maximum number of complementary sets the numerical advance of each double column should be a *factorial increment* or its multiple. In Fig. 6 the increment is 210, which is the product of the prime factors 2, 3, 5, and 7.

In making the table it is necessary to include the cells in which even numbers would fall, therefore this table is made for odd numbers only. To fill the table we count by odd numbers in the same procession as we did in Fig. 3, but a number is placed in its cell only when it is prime. (In Fig. 6 we have used dots instead of the numbers, their value being determined by the index numbers at the sides and bottom.)

We now select sets as indicated in Fig. 5, the letters at the left of the table indicating the respective sets. In the line C, B, A, either of these respective sets may be chosen. The dots enclosed in circles indicate the pseudo-pair to be used for construction, *and each end of these dots must have a normal complementary, which are shown with lines drawn through.*

The pseudo-complementaries are now placed in table form as shown in Fig. 7. That is, the prime numbers represented by dots enclosed in circles are transferred to a double-column table with the minor pairs in one column and major pairs in the other.

From this last table we select the diagonals. Two sets of $n/2$ (in this case three) numbers each are found which have equal sums. Two sets are indicated in Fig. 7, one set enclosed by squares and the other by circles, the sum of each being 765. Care must be taken not to have the two numbers of one pair contained in the same set, neither should there be more than $n/2$ minor pairs involved in this selection for diagonals.

One of these sets of three numbers is spaced in every second cell diagonally down to the right in the blank square, and the other set is placed diagonally down to the left as in Fig. 8.

The nine pseudo-pairs are now filled in completing the horizontal rows in which the six diagonal numbers fell, so that each row will contain one minor and two major pairs. By so doing we find that in Fig. 7 we have a surplus of pairs not needed, which are marked by an x at the side.

The arrangement of the pseudo-pairs in Fig. 8 is indicated by the curved lines which connect the numbers of each pair, the dotted

929	307	821	1327	773	1279	113	1171
1193	1453	1201	43	1217	59	1487	67
1523	271	577	1481	619	733	149	1367
1123	1489	1181	1451	1019	79	241	137
557	191	499	229	661	1601	1439	1543
157	1409	1103	199	1061	947	1531	313
487	227	479	1637	463	1621	193	1613
751	1373	859	353	907	401	1567	509

S=6720

Fig. 10.

31	599	691	3089	739	3041	757	3023	2971	809
853	1667	1979	541	2879	2791	1949	571	1367	1153
811	2969	769	3011	761	3019	479	151	1013	2767
2063	457	673	1847	2939	2731	1873	647	2053	467
1039	2741	29	2833	947	1061	2719	601	1051	2729
2111	409	3121	317	2203	2089	431	2549	2099	421
1087	2693	2477	1303	211	419	1277	2503	1097	2683
2339	181	2381	139	2389	131	2671	2999	2137	383
2297	1483	1171	2609	271	359	1201	2579	1783	1997
3119	2551	2459	61	2411	109	2393	127	179	2341

S=15750

Fig. 11.

lines indicating the minors and the full lines indicating the majors. The square is now half filled, and is completed by placing the

263	367	701	3709	643	3767	1933	2477	719	3691	3719	691
1277	1873	3727	3203	1979	1171	1949	1201	1901	1249	1667	1483
241	389	1051	3359	853	3557	863	3547	3463	947	977	3433
3673	3257	1069	2081	1913	1237	2213	937	2221	929	2027	1123
197	433	1039	3371	1091	3319	3361	1049	2039	2371	1087	3323
3671	3259	2683	467	593	2557	2341	809	2671	479	2551	599
109	521	1097	3313	3187	1223	1439	2971	1109	3301	1229	3181
3583	3347	2741	409	2689	461	419	2731	1741	1409	2693	457
107	523	2711	1699	1867	2543	1567	2843	1559	2851	1753	2657
3539	3391	2729	421	2927	223	2917	233	317	2833	2803	347
2503	1907	53	577	1801	2609	1831	2579	1879	2531	2113	2297
3517	3413	3079	71	3137	13	1847	1303	3061	89	61	3089

S=22680

Fig. 12.

167	509	673	863	331	1237
383	1259	1231	421	449	37
887	613	487	227	353	1213
373	647	773	1033	907	47
877	1	29	839	811	1223
1093	751	587	397	929	23

S=3780

601	797	239	947	43	1153
997	1249	151	431	269	683
199	599	641	1069	241	1031
1061	661	619	191	1019	229
263	11	1109	829	991	577
659	463	1021	313	1217	107

S=3780

Fig. 13.

normal complementary of each of these numbers vertically opposite to the line A—A and equidistant from it. This also completes the

diagonals, as we will now explain. The three diagonal numbers 29, 173 and 563, with their normal complementaries, would give the magic summation, but their complementaries cannot be used to complete the diagonal because of their vertical arrangement (see Fig. 2). But since the diagonal numbers $29+173+563=151+241+373$, the normal complementaries of the above two sets must be equal; therefore, $(29+173+563)$ + the normal complementaries of $(151+241+373)$ = the magic summation. By inspecting the completed square, Fig. 9, it will be found that the two diagonals are corrected as above described.

Examples of the eighth, tenth and twelfth orders are shown in Figs. 10, 11 and 12 respectively.

Fig. 13 is an example of twin squares. These are constructed by selecting a sufficient number of complementary sets to supply two squares of like summations.

HARRY A. SAYLES.

SCHENECTADY, N. Y.

THE GRAMMAR OF IDO.

The desire to establish an international language which should serve as an auxiliary means of communication between different nationalities has developed the new world language "Ido," which is practically a revision of Esperanto. A "Delegation for the Introduction of an International Language" was formed in 1901 during the World's Fair at Paris, and in 1907 an international committee of specialists chosen by them held a meeting at Paris in the College of France under Prof. Wilhelm Ostwald as chairman. After eighteen sessions the committee decided that Esperanto was the best international language but that it needed many improvements, and a new institute, the "Ido Academy," was entrusted with the task of revision. In carrying on the work they observed the following principles:

1. The alphabet is without accents, so as to avoid typographical difficulties, and remove all objection to using it in telegrams.

2. The adjectives are indeclinable as in English and the objective case is the same as the subjective, except when the object precedes the subject.

3. The derivation of words follows strictly logical rules.

4. The vocabulary must be international so as to make Ido the easiest possible speech for the greatest number of people of our modern civilization.

Since the labors of the academy have been finished, the propaganda for the international language rests with a committee, called "Uniono por la linguo internaciona," with Fr. Schneeberger, Lüsslingen bei Solothurn, as secretary, and A. Waltisbühl, of Zurich, Bahnhofstrasse 46, as treasurer.

The official organ published in Ido at Paris, and edited by the Professors Couturat and Leau under the title *Progreso*, contains all the transactions of the Ido Academy. The plan is to establish in Bern an office of the new world language which shall be competent to decide all differences and render agreement obligatory.

A German periodical edited by Pastor Fr. Schneeberger appears in monthly installments under the title *Die Weltsprache*, at a subscription price of 6 marks; a short grammar in German by Heinrich Peus, a vice-president of the Ido-Committee, has been published by the German Ido Society, called "Deutscher Weltsprache-Bund," the headquarters of which are Berlin, Charlottenburg, Waitzstrasse 24. An English key to Ido is distributed by Ward Nichols, 1306 Fitzwater St., Philadelphia; and English textbooks may also be obtained from Eugene MacPike, 135 Park Row, Chicago.

The following extract of the Ido grammar will be sufficient for our readers who wish to form an opinion of its advantages.

* * *

All letters retain the same sound throughout. There are only the five vowels, *a, e, i, o,* and *u* with the usual Italian pronunciation. There are no diphthongs. The consonants are generally the same as in English, French and German, but the following rules must be observed:

The *c* is pronounced *ts* like the German and Italian *z*, never like *s* or *k*;

s like the English *s*;

z like the English *z*;

j like the French *j* in "journal";

sh, ch, y, v, w, as in English.

The accent is always on the syllable before the last, but before other vowels *i* and *u* are pronounced as consonants, like *y* and *w*.

Thus *linguo* has the accent on *i* and *familio* on the second syllable, not on the last vowel but one.

The infinitive, ending in *ar*, has always the accent on the last syllable as in Spanish. It is derived from the Latin ending of the first conjugation, *are*, with the omission of the *e*.

The following endings mark the different parts of speech:

-o indicates the singular of a noun;

-i indicates the plural of a noun;

-a indicates an adjective;

-e indicates an adverb;

-ar (accented) indicates the infinitive of the verb.

The definite article is *la* for all three genders and both singular and plural numbers. There is no indefinite article; it is omitted as in Latin.

The genitive is formed with the preposition *di*, the dative with *a*. Thus we decline "the father":

	SINGULAR.	PLURAL.
Nom.	*la patro*	*la patri*
Gen.	*di la patro*	*di la patri*
Dat.	*a la patro*	*a la patri*
Acc.	*la patro*	*la patri*

The personal pronouns are:

SINGULAR.	PLURAL.
me, I	*ni*, we
tu, thou	*vi*, *you*
lu, he, she it.	*li*, they.

To distinguish the three genders in the third person one says:

	SINGULAR.	PLURAL.
Mas.	*ilu*	*ili*
Fem.	*elu*	*eli*
Neut.	*olu*.	*oli*.

The singular may be abbreviated to *il, el, ol.*

In courteous speech the form *vu* is used like the English "you," the French "vous" and the German "Sie."

The most important prepositions are as follows:

a, to or toward, like the Latin "ad," the Italian "a" (*ad*) and French "à";

an, near by (German "an");
ante, before in time (Latin "ante");
avan, before in space (French "avant");
apud, by the side of (Latin "apud");
che, in the house of (French "chez");
da, by, through (Italian "da");
de, away from (Latin "de");
di, of (possessive, Italian "di");
dop, behind (Italian "dopo");
dum, during (Latin "dum");
ek, out of (Greek "ek," Latin "ex");
en, in (French "en");
inter, between (Latin "inter");
kun, with (Latin "cum");
per, through (Latin and Italian "per");
por, for (French "pour");
pos, after (Latin "post");
sen, without (French "sans", Italian "senza");
sub, under (Latin "sub");
sur, upon (French "sur");
til, until (English "until");
tra, through (Latin "trans").

The infinitive of verbs ends in *r* and the three tenses are distinguished by *a* for the present, *i* for the past, and *o* for the future. Thus we have the three forms

amar, to love,
amir, to have loved,
amor, about to love.

The indicative ends in *-s* thus:

me esas, I am	*me havas*, I have
me esis, I was	*me havis*, I had
me esos, I shall be.	*me havos*, I shall have.

The conditional is indicated by the ending *-us*, thus:
me volas, I wish
me volus, I would wish
me povus, I would be able
me esus, I would be
me havus, I would have, etc.
The imperative is indicated by the ending *-ez*, thus: *Irez*, go!

parolez, speak! *audez,* hear! *facez,* do! *kurez,* run! *hastez,* hasten! *videz,* see! *mangez,* eat! *drinkez,* drink! *esez tranquila,* be quiet! *fidez,* have faith! *esez sincera,* be sincere!

The participle (adjective derived from the verb) exists in two forms, active ending in *-nta* and passive ending in *-ta*; thus: *am-anta,* loving; *am-ata,* beloved.

In combination with the auxiliary verb *esar,* to be, we can form not only active progressive tenses, but also the passive: *Me esas batanta,* I am beating; *me esas batata,* I am beaten.

Further combinations may be made as follows: *ni esis batita,* we have been beaten; ; *vi esos batita,* you shall have been beaten.

There is, however, a simpler way of forming the passive by contraction. Omitting *-ata* we may say *me am-esas,* I am loved, instead of *me amata esas.*

In the same way we may form the active progressive tenses in abbreviations by contracting the participle in *-inta* with the auxiliary verb *esar* by means of the connecting syllable *-ab.* We can contract

me esis vidinta, I was seeing, into *me vidabis*;

me esos vidinta, I shall be seeing, into *me vidabos.*

The personal pronouns are not changed in form but are declined like the nouns with the preposition *di* and *a,* thus:

Nom. *me,* I; Gen. *di me,* of me; Dat., *a me,* to me; Acc., *me,* me.

In case of inversions the accusative is indicated by the ending *n* thus:

SINGULAR.	PLURAL.
men, me	*nin,* us
tun, thee	*vin,* you
lun, him.	*lin,* them.

The impersonal pronoun "one," in the sense of the French "on" and the German "man," is in Ido *on* or *onu,* with the accusative *onun,* in case of inversion.

The possessive adjective is formed by adding the adjective ending *-a* to the personal pronoun, thus:

Mea, my; *tua,* thy; *lua,* his.

The demonstrative pronouns are as follows:

Ica, this; *ita,* that; or simply *ca* and *ta.*

The plurals *ici,* these, and *iti,* those, are also abbreviated to *ci* and *ti.*

The demonstrative pronouns of the neuter gender are *ico* or *co*, this thing; *ito* or *to*, that thing.

Relative and interrogatory pronouns are *qua*, who (masculine); *qui*, who (feminine); *quo*, what (neuter). Their accusatives are *quam*, *quin*, *quon*, whom and what.

Interrogative and relative adverbs are *kande*, when; *ube*, where; *quale*, how.

The following indefinite pronouns explain themselves:

singlu homo, each man
omna homo, every man (all)
ula hundo, some dog
irga hundo, any dog
nula amiko, no friend
kelka amiki, some friends
multa domi many houses
plura domi, several houses
tala vetero, such weather
quala vetero, what weather
tanta pekunio, so much money
quanta pekunio, how much money
sama sumo, the same amount
altra kozo, another thing
cetera homi, other people
me ipsa, myself.

The numerals are *un*, one; *du*, two; *tri*, three; *quar*, four; *kin*, five; *sis*, six; *sep*, seven; *ok*, eight; *non*, nine; *dek*, ten.

The tens are formed by the multiplicative suffix *a* combined with *dek*, thus: *dua dek*, twenty; *tria dek*, thirty; *quara dek*, forty, etc. In the same way the hundreds and thousands are formed, thus: *tria cent*, 300, and *kina mil*, 5000.

The ordinals are formed by the ending *-esma*: *un-esma*, the first; *du-esma*, the second; etc.

Fractions are formed by the ending *-ima*, plural *-imi;* thus, *duima pano*, half a loaf; *tri quarimi*, three quarters; *kin sepimi*, five sevenths.

Multiplicative numbers such as double, treble, and quadruple are formed by the ending *-opla*, thus, *duopla sumo*, a double sum; *la kinopla nombro*, the fivefold number.

Here is a list of conjunctions:

e or *ed*, and
o or *od*, or
ma, but
nam, for, because
ke, that
kande, when
se, if
pro ke, for the reason that, because
por ke, so that
sen ke, without that
per ke, through the fact that
quan kam, although.

The comparative and superlative of adjectives are formed by prefixing *plu* and *maxim* to the positive: *bona,* good; *plu bona,* better; *maxim bona,* best. The opposite forms, "less and least," are expressed by *min* and *minim*: *bela,* beautiful; *min bela,* less beautiful; *minim bela,* least beautiful.

The word *mem* (French "même") corresponds to the English "still," thus: *mem plu granda,* still greater.

The comparison of equals, "as—as" (Latin "tam—quam") is expressed in Ido by *tam—kam,* as in the following clause, *il esas tam afabla kam elu.* "He is as amiable as she."

"So—that" is expressed by *tante—ke.* "He is so tall that he is larger than all," reads in Ido, *il esas tante longa ke il super-esas omni.*

The corresponding adverbs are formed from adjectives by changing the ending *a* to *e.*

The forms of affirmation and negation are like the English, *yes* and *no.* The negative adverb "not" is *ne* and is always placed before the verb. Thus, "I do not believe" reads in Ido, *me ne kredas.*

The sequence of words in the sentence follows the logical order, as in English: *me vidis la amiko di mea patro,* "I have seen the friend of my father."

New words are formed from the roots by the aid of fifteen prefixes and forty-five suffixes.

arki- denotes higher degree (Eng. "arch-"): *arki-episcopi,* archbishop.

bo- denotes relationship by marriage (Fr. "beau"): *bo-patrino,* mother-in-law.

des- denotes the opposite (Eng. "dis-"): *des-unionar,* dissolve.

dis- denotes separation (Eng. "dis-"): *dis-sendar,* to send away.

ex- denotes former (Eng. "ex-"): *ex-urbestro,* ex-mayor.

ge- denotes taken together (Ger. "ge-" in "Geschwister"): *ge-spozi,* husband and wife (*spozo* = spouse); *ge-patri,* parents.

mi- denotes half (Fr. "mi-"): *mi-lauta,* half-aloud; *mi-apertar,* to open half-way.

mis- denotes wrong (Eng. "mis-"): *mis-kalkular,* miscalculate.

ne- denotes negation: *ne-habila,* unhandy; *ne-bela,* not beautiful.

par- denotes completion of an act (Ger. "ver-"): *par-venar,* to attain; *par-lektar,* to read through.

para- denotes protection (Fr. "para-"): *para-pluva,* umbrella; *para-fulmino,* lightning-rod.
pre- denotes before in rank and time (Eng. "pre-"): *pre-dicar,* predict.
retro- denotes back (Lat. "retro-"): *retro-sendar,* to send back.
ri- denotes again (Lat. "re-") *ri-venar,* to come again.
sen- denotes without (Fr. "sans-"): *sen-viva,* lifeless.

SUFFIXES..

-ach- denotes disparagement: *hundacho,* cur (*hundo* = dog).
-ad- denotes duration or repetition of an act: *la dansado,* dancing (*danso* = dance).
-ag- denotes action with: *martelagar,* to hammer (*martelo* = hammer).
-aj- denotes thing consisting of or made from: *novajo,* novelty (*nova* = new); *drinkajo,* beverage (*drinkar* = to drink).
-al- denotes relating to (Eng. -al"): *nationala,* national.
-an- denotes member: *skolano,* scholar (*skolo* = school).
-ar- denotes collection: *homaro,* humanity (*homo* = man).
-ari- denotes the object of an act: *sendario,* recipient.
-atr- denotes like: *sponjatra,* spongy.
-e- denotes color of: *orea,* golden.
-ebl- denotes possibility: *videbla,* visible (*vidar* = to see).
-ed- denotes quantity determined by: *glasedo,* glassful.
-eg- denotes increase; *grandega,* gigantic (*granda* = large).
-em- denotes inclined to: *babilema,* talkative.
-end- denotes necessity: *solvenda,* to be solved.
-er- denotes habitual action: *fumero,* smoker.
-eri- denotes institution: *bakerio,* bakery; *redakterio,* editorial office.
-es- denotes state or condition: *sanesar,* to be well.
-esk- denotes to begin: *dormeskar,* to fall asleep.
-estr- denotes chief: *urbestro,* mayor.
-et- denotes diminution: *dometro,* cottage (*domo* = house).
-ey- denotes place for: *laboreyo,* workshop (*laborar* = to work); *manjeyo,* dining room (*manjar* = to eat).
-i- denotes domain: *rejio,* kingdom (*rejo* = king).
-id- denotes offspring: *Napoleonido,* descendant of Napoleon; *Israelidi,* Israelites.

-ier- denotes characterized by: *pomiero,* apple-tree; *milioniero,* millionaire.
-if- denotes to produce: *florifar,* to bloom (*floro* = flower).
-ig- denotes to cause to: *mortigar,* to kill (*mortar* = to die).
-ij- denotes to become: *richijar,* to get rich (*richa* = rich).
-ik- denotes ill of: *febrika,* having fever.
-il- denotes instrument: *skribilo,* writing-utensil (*skribar* = to write).
-in- denotes feminine: *filiino,* daughter (*filio* = child).
-ind- denotes worthy: *aminda,* lovable (*amar* = to love); *laudinda,* praiseworthy (*laudar* = to praise).
-ism- denotes system: *vejetarismo,* vegetarianism; *monismo,* monism.
-ist- denotes follower of a system or calling: *artisto,* artist (*arto* = art); *monisto,* monist.
-iv- denotes ability: *instruktiva,* instructive (*instruktar* = to instruct).
-iz- denotes to supply with: *salizar,* to salt (*salo* = salt).
-oz- denotes full of: *saloza,* salty; *timoza,* fearful.
-ul- denotes masculine: *filiulo,* son (*filio* = child).
-un- denotes one individual of a whole: *nivuno,* snowflake (*nivo* = snow).
-ur- denotes result of an action: *kopiuro,* a copy (*kopiar* = to copy).
-uy- denotes a receptacle: *inkuyo,* ink-well (*inko* = ink).
-jun- denotes the young of animals: *hanyuno,* chicken (*hano* = fowl).

MISKOMPRENO.

En restorario ula sioro nepaciente klamas a la garsono: "He, garsono! Ja la quaresma foyo me vokas vu. Ka vu ne havas oreli?"—"Yes, sioro, pork-oreli kun lensi."

A Misunderstanding (translation).

In a restaurant a gentleman impatiently calls to the waiter: "Hello, waiter! This is the fourth time I have called you. Haven't you any ears?" — "Yes sir, pigs' ears with lentils."

ENGLISH AS A UNIVERSAL LANGUAGE.

To the Editor of The Monist:

I hav been looking over the literature on universal languages in the New York Public Library. What impresses me iz the lofty

humanitarianism that prompted such men as Schleyer and Zamenhof.

If such motives prompt the thousands that now advocate one or another universal language they might consistently giv English a fair chance to sho whether it iz by its nature fitted to become the *Weltsprache*. Perhaps we hav at hand already a mature language that iz potentially universal, but that iz hinderd from becoming so by its present spelling. It iz already the most widespred, it iz spoken by the greatest number of people, it haz the grandest literature. The fetters of antiquarian spelling can be broken and the language set free. That honest world-filologist, Jacob Grimm, wrote: "The antiquated orthography of English stands in the way of its becoming the universal language." Those interested in universal languages should investigate the natural claims of English to universality.

To that end it iz wel to look into the claims of the spelling-reformers: that it wil enable the child to read and write a year quicker and not impair its reasoning powers for life, as the illogical spelling now may do; that for the foreigner, particularly for the foreign child, there wil be even a greater gain. The thinkers that favord spelling reform should be considerd: Noah Webster, Ellis, Gladstone, Sweet, Skeat, Max Mueller, W. D. Whitney and William James, not to mention the living advocates of it.

It iz appropriat for those that honestly and unselfishly desire a universal language, to help in unfettering English that it may advance and assume, if by natural selection it iz suited for it, the role of *Weltsprache*. I recommend to all, as a first step, the omitting, in personal correspondence, of superfluus letters in words where the meaning iz unmistakable.

ALBON P. MAN, JR.

CHARLOTTSVILLE, VIRGINIA.

CURRENT PERIODICALS.

In the number of *Scientia* for September, 1915, Giuseppe Peano writes on the function of symbolism in arithmetic, algebra, the geometry of vectors, and logic, as a sequel to what Rignano wrote in the preceding volume of *Scientia*. Th. Svedberg writes a very interesting though somewhat technical article on the structure and form of molecules, in which the starting point is that, in the study

of gases and liquids, the concept of molecule is most fruitful and of its reality we have convincing proofs. E. H. Starling writes on "The Animal Machine and its Automatic Regulation," in which again is emphasized that, weight for weight, no man-made machine can be compared in efficiency with the numberless mechanical engines met with throughout the animal kingdom. There are two articles on aspects of nationality: A. Meillet writes on languages and nationalities; and Roberto Michels writes on the occasional lack of relationship between real and acquired nationality. Camillo Acqua gives a general review of our knowledge of the respiratory process in plants; and there are book reviews and French translations of the articles written in Italian and English.

In *Scientia* for October, 1915, Aldo Mieli maintains that, in spite of the very different views as to the nature of Greek science which are held by men of different branches of science, there is a unity in the scientific character of the ancient world, in virtue of which the development of the various sciences is due, not to the mentality of those who cultivated them, but to the special characteristics of the subject treated. P. Puiseux writes on the future of the planets, and points out that the tendency of the sun is not to contract and die out but to dilate and dissolve away. The concluding sentence is worth quoting: "The intelligence which exerts itself to view possible catastrophes with calmness is a better prop for a moral life than passive enjoyment of the present course of things." C. Lloyd Morgan has a very able and systematic discussion of the various views of "Mind and Body in their Relations to Each Other and to External Things." The only article concerned with the present problems of nations is one by Ramsay Muir of Manchester on "The Antipathy Between Germany and England." There are also reviews of books and other periodicals, and French translations of the articles in Italian and English.

In *Scientia* for November, 1915, A. S. Eddington writes on the stellar universe as a dynamical system. In the solar system dynamics has of course been successfully applied for a long time, but for the outside stellar system the study of dynamics has found but little application as yet. Charles Fabry gives the first part of an article on luminous atoms and their motions. Mario Vallauri writes on Indian medicine: medical doctrines were the consequence, in India as elsewhere, of religious theories, and the history of medicine among the Hindus is here traced from the Vedic age downward.

UMI

The only article touching on the national questions of the present is one by P. Bonfante of the University of Pavia on a possible future European confederation. Besides these articles there are reviews of books and periodicals, a chronicle, and French translations of the articles written in English and Italian.

* * *

In *Science Progress* for October, 1915, Dr. C. G. Knott gives an interesting account of the proceedings at the Napier Tercentenary held at Edinburgh in 1914 to celebrate the three-hundredth anniversary of the first publication of logarithms, and suggests that a fitting outcome of the Tercentenary would be a photographic reproduction of the manuscript volumes containing calculations of logarithms to fifteen places by the late Edward Sang. Walter Stott gives a most convincing appeal for more systematic work in the making accessible of the results of mathematical science by the thorough study of history. This appeal shows us that the value of a great part of the work of the Open Court Publishing Company will be appreciated by men of science. Some passages of Stott's article are worth quoting. "One hundred years after the publication of Laplace's *Essai philosophique sur les probabilités,* it has been translated into English by the Americans, and Lagrange's great work, the *Mécanique analytique,* which Hamilton called a scientific poem, has never been printed in English."...."Who would think of looking for valuable mathematical problems and theorems in papers bearing such titles as *The Ladies' Diary, The Gentleman's Diary, The British Diary, The Leeds Correspondent, The Northumbrian Mirror, The Liverpool Student, The Miscellanea Curiosa,* and numerous others with titles giving no index to the contents? And yet, if the history of mathematics is to be written, it is among such papers that we must search. What mathematician would think of looking into a work bearing the strange device *Instruction Given in the Drawing School Established by the Dublin Society*? And yet this book, written by Joseph Fenn (a name almost forgotten in mathematics), gives the first example of the use in the British Isles of the notation of Leibniz for the differential and integral calculus," and a discussion of the complex variable. "One of our most pressing needs is a set of works dealing with the history of special branches. Complete histories of the complex variable, of the theory of groups, of the solution of algebraic equations, of finite difference equations,

and of interpolation, of the imaginary exponents in differentiation, and of integral equations, are a few of the desiderata." A great part of the paper is concerned with the work of a little-known mathematician, Michael Dary, a contemporary of Newton, and the re-discovery of an important method of his for the solution of equations by the process of "iteration." This process was re-discovered in quite modern times by the editor of *Science Progress*, Sir Ronald Ross, who gives the first part of a full description of his method, which is of great interest and importance in that part of modern mathematics where operations and functional equations are dealt with. Dr. F. A. Mason contributes the first part of an article on "The Influence of Research on the Development of the Coal-Tar Dye Industry." "It is said that the coal-tar dye industry began in 1856 with the discovery of mauve by the late Sir W. H. Perkin. Nevertheless the real foundations of this industry were laid some thirty years previously in the discovery of benzene by Michael Faraday at the Royal Institution in 1825." Between 1825 and 1856 a great deal of valuable pioneer work was done upon the investigation of coal-tar, and, after a short account of the position of organic chemistry in those days, Mason deals with the period from 1856 to 1867, when a number of new dyes were discovered by Perkin and others. In 1856 Perkin, at the age of eighteen, left the Royal College of Chemistry, where he was a research pupil of Hofmann, and started in co-operation with his father and brother a small factory at Greenford Green near Harrow. "In 1863 twenty patents were taken out in Great Britain for synthetic dye-stuffs by British firms (which is incidentally the maximum number taken out by British firms in any year up to date, the next highest number being fifteen in 1901), and by 1865 the British dye industry had reached the zenith of its existence." Hofmann prepared a new violet dye and worked chiefly at the purely scientific side of the matter in London, while Heinrich Caro, Griess, Schunck and others worked on the technical side in Manchester. However from 1865 to 1868 the activity of the preparation of new dyes diminished in England after the return of Hofmann to Germany to carry on his important investigations on coal-tar derivatives. In the second period of 1868 to 1884 the synthesis of alizarine was discovered by Graebe and Liebermann in Berlin, and was patented in 1868, and from this dated the beginnings of azodyes which form the largest class of dye-stuffs known to-day. "It was at first supposed that

azo dyes could only be obtained in yellows or oranges, but Caro's discovery of 'fast red' in 1879 effectually disposed of these imaginary limitations, and from that date onwards every year saw the production of new azo-dyes of all shades and colors; one dye in particular deserves notice, namely Biebrich scarlet, discovered by Nietzki in 1879 as being the first representative of the sub-class known as disazo dyes, which have since grown to be of very great importance." Prof. F. Womack gives a classification and discussion of instrumental aids for deafness. The number concludes with essay-reviews; accounts of recent advances in science: mathematics, astronomy, physics, chemistry, geology, botany, zoology and anthropology; and notes, correspondence, and reviews of books. Φ

BOOK REVIEWS AND NOTES.

THE FIRST GRAMMAR OF THE LANGUAGE SPOKEN BY THE BONTOC IGOROT. With a Vocabulary, Texts, etc. By *Carl Wilhelm Seidenadel.* Chicago: The Open Court Pub. Co., 1909. Price, $5.00 net.

This sumptuous volume bears *prima facie* evidence of devotion and affection. The author is evidently in love with his subject, and the contributors who made the publication possible must have caught something of his enthusiasm, to send forth his work, gowned in silk and gold, with gilt top, printed at least in part with specially-cast type, its typography and illustrations superb, and its dimensions reminding one of the Family Bible which posed on the center-table of most New England houses of the past generation.

One pauses to wonder, Why all this sumptuousness? Certainly there is no eager race in and around Bontok to learn the local dialect. One can count on one hand the number of white people who have made any serious effort at all to do this, including Dr. Seidenadel, and still have fingers left. But doubtless there is a circle, of which not the center, and hardly the circumference, touches Bontok, of those whose interest in the subject is nevertheless real; we mean the scholars of the "MP" (Malayo-Polynesian) languages. Here is a field just opening more widely, and here is a scattered group of specialists that must be duly impressed and edified. There is a specific gravity in tomes, and we predict that this luxurious volume will take high rank as a heavyweight.

And this not only as to appearance, but also as to contents. May I be pardoned for suggesting incidentally, just here, that, for gaining this prestige, the rather general discrediting of every effort which others have made in the same field was hardly necessary or effective, and that the innuendoes indulged in seem somewhat petty and ungenerous. The impression of accurate, painstaking scholarship loses rather than gains by their presence in the prefatory pages of the various parts of the book.

Otherwise the work is full of merit. One wonders that so much could be accomplished when he considers the method and circumscribing conditions.

Dr. Seidenadel had not the Igorots flocking around him from early sunrise till nightfall, as we have; their talk, their songs, the sound of their gongs, constantly dinning in his ears. He had to go to them at times when they could get an interval from their show-business in American pleasure resorts, and patiently gather his material from the men and boys who became his informants, teachers and helpers.

And yet while in this there was a loss, there was also a gain. The loss was that which can only be gotten in informal, habitual contact, the things which one "picks up," as a child acquires a language, not reasoning much why or how a thing is so. The pencil and note-book plan of approaching linguistic and ethnological problems has certain drawbacks. The observer thinks he has a fact, notes it down, and proceeds to ask whether it is so. He probably elicits an affirmative answer; but the chances are at least even that the thing is not so at all, or only partly so, and under certain conditions. This is emphatically true of the Bontok Igorots, and I fancy it may be of most "primitive" people. Reliance on this method has marred the value of otherwise admirable books. It is safe to say that the ultimate facts, linguistic or other, regarding the Igorot, can never be gotten at except by one who, by actual residence among the people, gleans his information informally, but has his note-book in steady use behind a screen. One can only wish that the author, with his evident love for the work, could do this.

As it is, he has made mistakes, due doubtless to this (*quasi*) exotic though necessary character of his method. Our best language-helper (we know well most of Dr. Seidenadel's helpers and have had several of them in our employ) sits down to *The First Grammar*, and, reading a rule and examples, says occasionally, "Oh that is not so, that is not right!"

For example, we take up the volume and turn, quite at random, to p. 110 and remark that *Tekuafek* should be *Tekuafak*, the *-ek* form not being found in this verb. On p. 113 *Alitauko* should be *Alitauk*. On p. 150 *Nan soklong ay maisabfud* means not the hat which "is suspended," but which "is to be suspended." A little lower down on the same page one can say emphatically that the Bontok people *never* say *mangayak*, but *mangayag*. This is only one of many cases, however, where Dr. Seidenadel's reproductions of sounds are simply "impossible." Under "Interrogative Sentences," p. 160, my helper strenuously objects to *Aykö tinmoli siya ay?* for "Has he returned?" "Barlig or Lias men might say it that way, but Bontok never." On p. 167 *Ngagka man ken Bugti?* is declared to be meaningless, *enisibanyu ken* being the correct expression. On p. 169 *mangaktam* is given for *mangaktanam*; and so on. All this in a cursory way, with growing wonder, not that some errors are made, but that, under the circumstances, they are so few; and that one of a different race, so far removed from the abode of the main body of the people, should be able to produce what so nearly stands the test of intelligent native criticism.

Formerly, when we had time for "systematic" note-book work, we too wrote down a good many things which were "not so"; any one will. But after all, the systematic method must be combined with the other. It *is* systematic, and thoughtful and definite; and definite results, even if mistaken, are good waymarks. On the whole Dr. Seidenadel seems to recognize this, in spite of some apparent assumptions of infallibility.

The author looks askance at missionaries and their language-work; they are so unscientific and take such liberties. Without claiming a right to hold a brief for all missionaries, we may perhaps say that many, even most of them, approach the subject from a very different direction from that of a Chicago University linguist. They want to *use* the language as much as their limited abilities will allow, and if, as in the case of the Bontok dialect, it has never been put down in black and white, they want to commit it to writing, and to printing, and to teach the people to read their own language. Now, as the Doctor constantly affirms, this language is full of variations, transpositions, substitutions; variations in the individual pronunciation, according as a man lives on one side or the other of this river or that mountain. This being so, the missionary's utilitarian object demands that these minor differences be levelled, and that something like a just and intelligible average be struck. In fact he enters into the field of Igorot as a disturbing factor in just the same sense that Caxton did into English. He will doubtless use all the knowledge and good sense he possesses in the task of deciding how he will write words, giving a large consideration to local and antecedent conditions; and then, although he wishes to be humble, he has to seem to arrogate to himself the position of an authority and decide and put into practice what he thinks to be the best.

It is thus that languages live and grow in the presence of civilization and competing languages; they must consolidate and unify, or they degenerate into confused jargons. The Igorot is all the time being hard-pressed by the Ilokano. An immense change has come over the language of the Bontok men who come into contact with outsiders, within the last three years. We missionaries bewail and would fain resist this, as much as the author would. It is a fact to be met, if at all, by training the teachable young to regard their mother-tongue as a dignified, respectable, regular language, not to be dropped at the approach of English or Ilokano, and which, if they will, they can read, and write, and print. If a good nucleus of such intelligent Igorots of the rising generation can be made to see this and take hold of it, the seed will have been sown, we hope, which shall develop into a force to bind language and people together.

Of course this missionary idea is different from the museum, or preserving process, beyond which the linguist, pure and simple, seems unable to think. To bottle up a language in long rows of labeled and slightly varying specimens is very interesting, and of course quite scientific; but it implies that the specimens are, after all, dead things, relics of a past development, but with no special future except for the dissector and microscopist. The two ideas are not antagonistic, unless one or the other assumes the offensive. Let the scientist use his scalpel all he will, so that he understands that he is engaged in vivisection; but let the missionary's dealing with a living race that is begetting sons and daughters that have souls, be also respected.

For the author's grammatical study and analysis of the language we have only words of admiration. Our language helper may find errors which possibly we may be able to recognize; but in general Dr. Seidenadel has gone far more deeply into the construction of the dialect than we have either the time or the ability to do.

His writing of the sounds is different from ours in many respects, and

in some instances we have been at great loss to see how he could justify his system of alphabetization and reproduction of words. One principle which has guided us, that of averages where there is variation, he, from his standpoint would wholly reject, of course. Another important factor is the racial one. His ears and tongue are German; ours are not. Here come in matters beyond dispute. And in writing for people here we have had to take into account the various contacts, Ilokano, Spanish, American.

Taken from the standpoint of the author, the work is altogether and emphatically a most valuable one. It is easily the *opus magnum* on the subject thus far, and will probably remain so until the author can come to the Islands with leisure to cultivate in the home of his friends, of whom he has many, the pursuits of which he has already reaped such noteworthy fruits.

WALTER C. CLAPP.

Postscript.—The foregoing review was written at Bontok, in the Philippine Islands, about a year after the appearance of the book. Early in 1912 the reviewer left the Mission on furlough, and, under a sense of duty and in spite of his affection for the Igorots, decided not to return. Dr. Seidenadel died in Chicago about a year ago. He had long cherished a desire to go to Bontok and study the people and their language there; and it is to be regretted that his patience, enthusiasm and genius are no longer available for that adventure. The tradition of language-work in the Mission, made less imperative from one standpoint by the American development of Bontok as a provincial capital, is not abandoned. Miss Margaret P. Waterman, a graduate of Wellesley College and long recognized as the best practical linguist among the residents in the matter of the Igorot dialect, has completed a study of *Bontok Stems and Their Derivatives* (Bureau of Science, Manila, 1912), and a translation of St. Luke's Gospel (British and Foreign Bible Society) and is now at work on a simple practical manual of grammar. But Dr. Seidenadel's book is likely to remain always a great help to those who pursue the ideal of cultivating the native dialect,—to say nothing of its value as a permanent contribution to the literature of philology and ethnic science.

DANVILLE, PA. W. C. C.

Mr. Albert J. Edmunds of Philadelphia has prepared two postscripts (dated 1912 and 1914) to the fourth edition of his *Buddhist and Christian Gospels* (Philadelphia, 1907-1909). These contain additional notes and bibliographical references, and even sum up Mr. Edmunds's position on the subject of Buddhist-Christian loans at the present time, including an enumeration of the three phrases in the Gospels, which he regards as directly borrowed, and the five narratives colored by Buddhist influence. He has thus formulated a motto which he expects to place at the head of any future articles on the loan hypothesis:

"Both religions independent in the main, but out of eighty-nine chapters in the Gospels, the equivalent of one (mostly in Luke) is colored by a knowledge of Buddhism. The transference was made possible by recently discovered versions of the Buddhist scriptures in vernaculars of the Parthian empire. Parthians were present at the founding of the Christian religion (Acts ii. 9)."